Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

Volume 29 Number 1 **Winter 2010**

Monthly meetings

Thompson Park Center/Dakota Lodge
Thompson County Park
360 Butler Ave. E.,
West St. Paul, MN 55118

Programs

The Minnesota Native Plant Society meets the first Thursday in October, November, December, February, March, April, May, and June. Check at www.mnnps.org for more program information.

6 p.m. — Social period

7 – 9 p.m. — Program, Society business

Feb. 4: "Looking at Lichens," by Dr. Imke Schmitt, assistant professor, University of Minnesota. **Plant of the Month:** One-flowered broom rape or cancer-root, *Orobanche uniflora*, by Ken Arndt, Critical Connections Ecological Services, Inc.

March 4: "Ash Genetic Conservation," by Dr. Andy David, associate professor, University of Minnesota. **Plant of the Month:** Black Ash, *Fraxinus nigra*.

April 1: "Extension forestry in the 21st Century: Capacity, Innovation, and Impact," by Eli Sagor, Extension educator, University of Minnesota Extension Service. **Plant of the Month:** Black spruce, *Picea mariana.*

March 27: Symposium (See page 6.)

MNNPS website

For information about Society field trips, meetings and events, check the website: www.mnnps.org

A Rose Is a Rose Is a Rose?

by Anita F. Cholewa, Ph.D., curator of the UM Herbarium, Bell Museum of Natural History, University of Minnesota.

In last month's newsletter, we learned a little about what scientific names mean and how to pronounce them. Now, why do "they" keep changing the names?

To answer this, we must first consider what makes a species a species. This sounds like a simple question, but it's not — the answer has changed over the centuries as we have gained a better understanding of nature. Initially, a species was defined as populations that looked identical. Eventually, a breeding requirement was included, and the definition changed to populations that contained *similar looking* individuals with the *potential* to interbreed and produce viable offspring. Then it was recognized that, at least in the plant world, external morphology could change depending on the environment (desert plants can become more hairy during droughts; flower color could change due to soil pH; habit could change due to elevation; etc.). Then it was discovered that plants, unlike most animals, can survive chromosomal alterations such as extra doubling or loss of a chromosome, and many species were found to self-breed, and some species (for example, dandelions) don't even need pollen to produce viable seed (known as agamospermy). Today, the actual genetic makeup and the ancestral history of plants are taken into account in our definition of a species.

As a result of these changes in our concept of the species, the species boundaries have changed, and our names for some species have to change (and sometimes a species is moved to a different family altogether). Sometimes several different species (for example in *Achillea*, the yarrows) in reality are only one or a few, highly variable species. Other times one species turns out to be two or more (for example in *Cenchrus*, the sandbur, and *Elymus*, the rye grasses). And sometimes, a group of plants was once thought to be different species, then combined, and then split again (for example in *Pyrola*, the shinleafs or wintergreens).

But there are rules for how these nomenclatural changes occur. When a species (or genus) is split

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In this issue

Who Does What

The MNNPS is an all- volunteer organization. Following are the people who were filling various duties in December. If you would like to help, please contact the person listed or an officer.

Officers

President: Scott Milburn
Vice-President: Shirley Mah Kooyman
Secretary: Andrés Morantes
Treasurer: Ron Huber

Committees, Responsibilities

Program, Education, Lectures
Programs: Andrés Morantes
Postcards: Ron, Cathy Huber
Refreshments: Ken Arndt
Audio-Visual: Scott Milburn, Ken Arndt
Meeting site open/close:Ken Arndt
Seed Exchange: Dave Crawford, Ken Arndt, Scott Milburn
Plant Sale: Dave Crawford, Ken Arndt, Gerry Drewry

Membership and Outreach
Membership roster, directory, name tags: Ron, Cathy Huber
Mailing labels: Ron, Cathy Huber
New Member Packets: Cathy Huber
Technical assistance: David Johnson
Telephone contact: Linda Huhn
Brochures and Stationery: Andrés Morantes, Elizabeth Heck
Display Board : Vacant

Publications
Newsletter Editor: Gerry Drewry
Newsletter assistant: Vacant
Newsletter mailing: Ron, Cathy Huber

Website updates
Elizabeth Heck, Scott Milburn

Facebook, Blog
Michael Bourdaghs, Angela Hanson

Conservation, Education
Chair: Beth Nixon

Field Trips
Identify options: Ken Arndt, Scott Milburn
Logistics: Ken Arndt
Leading Trips: Varies with trip

Symposium
Theme, Site: Scott Milburn, Erika Rowe
Speakers: Scott Milburn, Angela Hanson, Erika Rowe
Registration: Shirley Mah Kooyman
Brochures: Scott Milburn, Jeanne Schacht
Catering: Shirley Mah Kooyman, Angela Hanson

Historian
Conservation/storage Roy Robison

Post Office Box
Pickup, distribution: Ron, Cathy Huber

MNNPS welcomes new members

The Society gives a warm welcome to new members who joined during the fourth quarter of 2009. Listed alphabetically, they are:

Christina and David Bellert, Dallas, OR.
Don Degue, Roseville
Katie Frerker, Rochester
Elna Goodspeed, Fridley
*Chris Gronewold, Lauderdale
David Julson, Stillwater
Mark Leipairtz, Farmington
Mary Jo Moltzen, Fairmont
Rebecca Montgomery, St. Paul
Karen Nyhus, Mendota Heights
Glen Olson, North St. Paul
*Rebecca Stone, Lauderdale
Denise and Robert Wolff, Lakeville
(*family membership)

MNNPS finances

by Ron, Cathy Huber, treasurers

At the end of calendar year 2009, the Society had total assets of $24,743.23.

Income for the year totaled $13,238.52, mostly from dues and the symposium. Expenses came to $13,824.77, mostly for the symposium, Dakota Lodge rental, and a donation to the DNR for the upcoming book by Welby Smith.

MNNPS Board of Directors

President: Scott Milburn, scott.milburn@mnnps.org

Vice President: Shirley Mah Kooyman, shirley.mah.kooyman@mnnps.org

Secretary, program coordinator**: Andrés Morantes,** andres.morantes@mnnps.org

Treasurer, membership data base**: Ron and Cathy Huber,** ron.huber@mnnps.org

DerekAnderson, board member, derek.anderson@mnnps.org

Ken Arndt, board member, field trip chair, ken.arndt@mnnps.org

Michael Bourdaghs, board member, michael.bourdaghs@mnnps.org

Angela Hanson, board member, angela.hanson@mnnps.org

Elizabeth Heck, board member, webmaster, elizabeth.heck@mnnps.org

Dylan Lueth, board member, dylan.lueth@mnnps.org

Elizabeth Nixon, board member, conservation committee chair, beth.nixon@mnnps.org

Erika Rowe, board member, erika.rowe@mnnps.org

Russ Schaffenberg, board member, russ.schaffenberg@mnnps.org

Field Trips: fieldtrips.mnnps@mnnps.org

Memberships: memberships.mnnps@mnnps.org

Historian-Archives: Roy Robison, historian-archives.mnnps@mnnps.org

Technical or membership inquiries: contact.mnnps@mnnps.org

***Minnesota Plant Press* Editor: Gerry Drewry,** 651-463-8006; plantpress.mnnps@mnnps.org

Harvesting of spruce tops is damaging bogs

by Norm Aaseng, plant ecologist, Minnesota County Biological Survey. This is a summary of his talk at the Nov. 5, 2009, MNNPS meeting.

Decorative tree harvesting is the cutting of the top two to four feet of stunted (six- to 15-foot) black spruce trees. These spruce tops are shipped to garden stores and other outlets where they are sold as decorations during the winter holiday season. In the mid-1990s, the harvesting of spruce tops in Minnesota began to expand, and today an estimated one-half million to one million tree tops are harvested per year. Surveys indicate that there is a market for three times that number of spruce tops. Harvesting occurs primarily on state and county lands in northwest Aitkin, southwest St. Louis, northwest Carlton, and southwest Itasca counties from mid-September to mid-December. This activity provides income to local harvesters from lands that typically do not generate any revenue.

Although black spruce trees are found in a variety of peatland and upland native plant community classes, almost all decorative tops come from the Northern Spruce Bogs (APn80 in the DNR's *Field Guide to the Native Plant Communities of Minnesota*). The Northern Spruce Bog is the most nutrient poor as well as the most acidic native plant community occurring in Minnesota. These conditions create a very inhospitable environment in which only 25 vascular plant species are adapted to survive. Typical species found in bogs include carnivorous plants, such as pitcher plant (*Sarracenia purpurea*), ericaceous shrubs, such as bog rosemary (*Andromeda glaucophylla*) and bog laurel (*Kalmia polifolia*), and graminoids such as cotton grasses (*Eriophorum spissum*) and bog wiregrass sedge (*Carex oligosperma*). Hummocks of sphagnum moss cover the ground surface. The severe conditions are responsible for the stunted size and shape of black spruce trees desired by harvesters.

As tree-top harvesting operations increased in size, environmental impacts from harvesting became apparent. DNR Forestry assembled a field team to determine the impacts of tree-top harvesting and the factors contributing to the damage. The team found that the cutting of the spruce tops did not appear to have a significant impact. Tree tops were reported to grow back and be harvested in 10 - 20 years.

However, very significant impacts occurred from rutting on all-terrain vehicles (ATV) access trails. Initial passes by ATVs create a trail by compressing the sphagnum peat, but repeated traversing of trails, especially with heavy vehicles, resulted in cutting through the live root mat that occurs in the upper six inches of the peat. Once this mat is cut, the weight-bearing capacity of the peat is severely reduced, resulting in increasing size and depth of pools with every pass of an ATV. The deeper the ruts are, the longer it takes the vegetation to recover. If damage is significant, there can be a conversion of vegetation to marsh or even exotic plant species. Water tracks and laggs (shrubby wet moats occurring between the interface of peatland and upland) were found to be particularly susceptible to damage from ATVs. The creation of deep pools and the elimination of existing vegetation easily occurred along the ATV trails in these areas.

To minimize these impacts, the DNR instituted regulations that limited the depth and length of rutting allowed on trails as well as imposing restrictions on the access of harvest areas through laggs and water tracks.

Despite the regulations, some impacts continued to occur, primarily through "rogue" or inexperienced harvesters. Because public auction requires that the sale of tree tops go to the highest bidder regardless of competence of the harvesters, the DNR no longer offers this option for decorative harvesting. Instead, private sales are negotiated with proven operators that possess the appropriate equipment, such as low pressure-tired vehicles. Because these private sales are much smaller in size than public auctions, the DNR sales are now limited to a total of 200,000 tree tops per year. With increasing demand for spruce tops it may be that operations will be shifting to lands that are less regulated.

$3.7 million in legacy conservation grants are awarded

$3,740,000 in 2010 Conservation Partners Legacy grants have been awarded, the DNR has announced. The funds are from the Outdoor Heritage Fund created by voters who approved the constitutional amendment in 2008.

Grants range from $5,000 to $400,000. The 35 projects include seven for fish, game and wildlife ($874,754); eight for forests ($789,814); 12 for prairies ($933,206); and eight for wetlands ($1,142,226).

By activity, 11 are for land acquisition ($1,860,300); 12 for enhancement ($701,398); and 12 for restoration ($1,178,302).

127 applications totaling $16.5 million were received. "The volume of applications we received and the energy around these efforts has been impressive," said DNR Commissioner Mark Holsten.

MNNPS opposes proposed copper mine in Superior National Forest

PolyMet Mining Corp. is seeking permission to open its proposed NorthMet open pit mine south of Babbitt and northeast of Hoyt Lakes in the Superior National Forest. According to their website, the company "will mine and process metals used in daily life." These metals include copper, nickel, cobalt, platinum, palladium, and gold. PolyMet is working to complete the environmental review and permitting in 2010 and expects to begin construction in 2010.

The MNNPS Board sent the following Draft Environmental Impact Statement response letter on Dec. 21, 2009, to Stuart Arkley, EIS project manager, Environmental Review Unit, Division of Ecological Resources, Minnesota DNR. Dylan Lueth and Elizabeth Heck were the primary authors. It was signed by Scott Milburn, Society president. The entire board supports the response, and they want members to know the action they have taken.

Subject: Comments on the Draft Environmental Impact Statement (DEIS) for the PolyMet Mining Inc./NorthMet Project

Dear Mr. Arkley,

The Minnesota Native Plant Society (MNNPS) has reviewed the draft environmental impact statement (DEIS) for the proposed PolyMet Mining Inc./NorthMet Project and would like to address potential problems that were noted during the review process.

1. The Use of Non-native, Invasive Species to Stabilize Disturbed Areas

The MNNPS has serious concerns with respect to the use of non-native, and potentially, invasive species to "temporarily vegetatively stabilize disturbed areas during operation and permanently reclaim during Closure, by applying seeds or planting seedlings." The proposed species include sweet clover, redtop, alsike clover, Canada bluegrass, Cicer milkvetch, birdsfoot trefoil, perennial ryegrass, smooth brome grass, and red fescue. These species are very aggressive and have the potential to completely change the existing landscape, especially considering the amount of disturbance that will be coupled with the plantings.

Many of the these species have already established themselves around the state, and the introduction of these invasive plants to the project area has the potential to extend well beyond, most notably, the Boundary Waters Canoe Area Wilderness (BWCAW), an area that is already facing problems with invasive introductions. The draft EIS also indicates that Class 1 and 2 invasive species currently exist within three miles of the plant and mine sites. A diverse mix of ecologically appropriate native species is recommended for any permanent revegetation during mining operations and during reclamation. Any temporary stabilization should be done with non-invasive, annual plant species, or other erosion control measures.

It also appears counter-productive to propose removing non-native and invasive vegetation through mechanical means or herbicide application at the Aitkin and Hinckley mitigation sites, while planting them in an area commonly referred to as the 100-mile-swamp.

2. Endangered, Threatened and Special Concern Species

The MNNPS would like to address the very likely potential impact on Endangered, Threatened, and Special Concern species within the project area. The species of most concern is the aquatic floating marsh marigold (*Caltha natans),* a State Endangered species. It is generally rare throughout its range and has suffered recent extirpations, largely from habitat loss or alteration, a well-documented problem for aquatic species statewide (*MN DNR, Rare Species Guide,* http://www.dnr.state.mn.us/rsg/index.html). There are only 12 known populations of this species in Minnesota. Of those 12 populations, nine populations have been reconfirmed within the last 20 years, including the population found on the PolyMet site.

This would not be the first time that *Caltha natans* would be affected by mining. Evidence of the effects of mining practices on *Caltha natans* were first noted by Olga Lakela in 1953 when she reported that nearby mining activities had lowered the water level, thereby stranding and decimating the population. Any loss of Minnesota's rare flora would be a major disappointment to the MNNPS, and it is recommended that more specific data be required regarding impacts to current populations, and that surveys for additional populations of *Caltha natans* be conducted.

3. Peatland Destruction and Carbon Sequestration

While peatlands cover only 3 percent of the Earth's surface, they store 550 gigatons of carbon, which is equivalent to 30 percent of all global soil carbon. The amount of wetlands projected to be impacted by PolyMet at this time does not accurately represent the total amount of wetland impacts that would occur. This is due to the fact that no initial area of influence (AOI) on the wetlands was made. This means that wetland impacts to communities such as cedar

swamps, northern wet ash swamps, forested rich peatlands, northern alder swamps, and poor fens have not been accurately accounted for. These communities rely on a steady influx of groundwater flow for nutrients and soil moisture. If the hydrology around them is changed, they too will be affected. The Army Corps is developing a work plan to assess impacts to these additional wetlands, but this work plan has not been finalized or implemented. As the PolyMet project currently stands, there would be both direct and indirect impacts to over 1,500 acres of wetland. The destruction of just 1,000 acres of peatland correlates into a 2 percent increase in the total output of carbon dioxide emissions in Minnesota.

4. Impacts to Water Resources

Aside from direct impacts on native plants and plant communities, impacts on water resources need to be addressed further. Hydrologic conditions form the basis of entire ecosystems, and hydrologic forces and characteristics shape entire landscapes. As such, impacts to water resources have a much broader and longer-lasting environmental impact. NorthMet Project Draft EIS does not recommend commensurate actions and/or alternatives to such serious impacts. The type of mining proposed would leave behind sulfide-containing waste rock and may result in acid mine drainage. Stockpiled material also poses a significant threat to surface water and groundwater, beginning with the Partridge River and the entire St. Louis River Basin. The project would involve direct and indirect impacts to about 1,522 acres of wetlands, most of them ranked as high quality. This is one of the largest wetland impacts in Minnesota history.

5. Economic Impacts

This project is focused on short-term economic gains and does not adequately address the long-term negative impacts, for which the state and the USFS will ultimately be responsible. Furthermore, the job benefits of this project are unsustainable and short sighted. The natural communities in the project area also provide habitat for native plants and animals and promote long-term economic tourism benefits, including tourism-related jobs. Minnesotans, as well as people from all over the country, have long been attracted to and enjoyed the relatively unspoiled beauty of northeastern Minnesota, and they will continue to value the integrity of their natural landscapes.

Please do not compromise Minnesota's natural heritage by allowing PolyMet to circumvent their responsibility by minimizing the negative environmental impacts of this project.

Sincerely,
Scott Milburn, Minnesota Native Plant Society president

Moss launches spores in vortex rings

Low-growing sphagnum moss shoots its spores 10 to 20 times higher than expected by using a vortex ring, previously known only from animals, Plant Ecologist Joan Edwards of Williams College in Williamstown, Mass. said at a Jan. 4 meeting of biologists.

The spores form a mushroom-like cloud that has a better chance of rising into turbulent air and being dispersed. For more infomation, go to www.sciencenews.org/view/generic/id/52884

Series of rain-garden workshops planned

Four rain-garden workshops are being sponsored by Ramsey-Washington Metro Watershed District and Maplewood City on March 24, April 15, April 29 and May 6. The fee for each session is $5, and pre-registration is required. For details, go to News and Events, Workshops, at www.rwmwd.org

President's Column

by Scott Milburn

At our quarterly board meeting this past December, the board unanimously supported a motion to donate $2,000 to the Minnesota Department of Natural Resources. This money is specifically earmarked for future writing efforts by State Botanist Welby Smith. In total, the Society has now donated $5,000 to Welby, which is an excellent way for the Society to contribute back and fulfill our educational mission. This donation provides important funding that allows book projects to move forward.

In other Society news, our past December monthly program marked the end of Linda Huhn's tenure as monthly program chair. Linda has served in this position for the past seven years and has done a tremendous job lining up speakers throughout this time. Our secretary, Andrés Morantes, will be taking over for Linda, and I look forward to his efforts.

I would also like to remind our members that board member elections will take place at our March annual meeting. We have three open positions, so please contact Vice President Shirley Mah Kooyman if you are interested.

We also have our upcoming symposium in late March. In the past few years, we have held the symposium during the first week of April. However, the first weekend of April is Easter weekend, and it was decided to push the event forward one week, to March 27. We will be working with our friends at the Bell Museum once again. The committee is actively lining up speakers on the topic, "Sand Dunes of Minnesota." More information will be provided as planning proceeds.

Conservation Corner

by Beth Nixon

Reminder to Blog

The mission of the Conservation Committee is promotion of the use of native plant species, preservation of native plant species and communities, and conservation of rare and endangered species. We are asking all members to join this effort through participation in the Society Blog posts.

You can contribute comments to posted issues, information which can in turn be used for preparation of Society letters. You can also contribute by following through on Blog post requests to contact your legislative representatives. Comments are requested for the following posted topics: regulated harvesting of black spruce tips, no child left inside, state or federal environmental review of proposed actions in Minnesota, funding for the environment managed by the Lessard Outdoor Council, prairie grass for biofuel, and off-road vehicle effects on native plants.

Contact any board member with your ideas for additional postings that you would like to add to the Blog.

Facebook Fans

You can also contribute to the Society mission by participating on Facebook. The fanclub is growing, with over 80 viewers and contributors.

PolyMet Mining proposal

For the past couple of years, the Society has commented on how proposed actions in the State of Minnesota might affect native plant populations and communities. Most recently, comments were submitted regarding the proposed PolyMet Mining project in northern Minnesota near Hoyt Lakes. [See letter on page 4.] The Society requested consideration be given to:

•Avoiding the use of nonnative invasive species to stabilize disturbed areas;

•Suitable mitigation to include further site investigation;

•A plan to aid in stabilizing current known populations of *Caltha natans*, a rare species at the site;

•More accurate accounting of the presence of and impacts to cedar swamps, northern wet ash swamps, forested rich peatlands, northern alder swamps, and poor fens, including their contribution to carbon sequestration;

•An overall approach to mitigation for water resource impacts in an interconnected manner for both ground and surface water, commensurate with the indirect impact to over 1,500 acres of high quality wetlands within the Partridge River system; and

•Short-term versus long-term economic value to the State of Minnesota, including long-term sustainability of the near-term job benefits and potential long-term losses to tourism-related jobs.

Honorary Member Evelyn Moyle dies

Lifetime MNNPS honorary member Evelyn Moyle, co-producer and photographer of the first edition of *Northland Wildflowers: the Comprehensive Guide to the Minnesota Region*, died of a heart attack Jan. 3 at the age of 95. Her late husband, John, supplied the text for the best-selling book, which was printed in 1977.

A second, enlarged edition was published in 2001, with photographs by John Gregor and text by Evelyn Moyle. She was honored at a book-signing reception before the June 7, 2001, MNNPS meeting and was presented with a certificate of appreciation for her work.

Minnesota sand dunes will be topic of symposium

"Sand Dunes of Minnesota" is the title of this year's MNNPS symposium. Learn about dune biology and natural history, the plants and animals that inhabit dunes, and current issues and threats to these special places.

The symposium will be held Saturday, March 27, at the Bell Museum of Natural History on the University of Minnesota campus, Minneapolis. Watch for a brochure with details.

Grey Cloud Dunes Scientific and Natural Area, Washington County, photo by Scott Milburn

Where is the Blog?

The MNNPS Blog is entitled "Conversations on Conservation." To read and respond to the Blog, go to the Society's website at www.mnnps.org and click on Blog in the left-hand column. You can read the messages and comments and reply to them. All members are encouraged to participate in this exchange of ideas.

Plant Lore

by Thor Kommedahl

What is sweet gale?

Sweet gale is *Myrica gale* in the wax-myrtle family, growing as a native plant in northeast Minnesota.

How did it get its names?

Myrica comes from a Greek word *myrike* referring to fragrance. *Gale* is derived from an old English word for bog myrtle, taken from the word *Gagel,* which is the German word for sweet gale. It is sometime called bog myrtle because it often inhabits peat bogs.

What does the plant look like?

It is a shrub that grows from two to six feet tall with many stems and branches. The grayish leaves are dotted with yellow glands visible with a hand lens; leaves emit a fragrant odor when crushed. Sexes are usually on separate plants, but sometimes on the same plant but different flowers. Flowers appear in compact catkins with two wing-like bracts, and the fruit is nutlike (small drupe).

Where does the plant grow?

Sweet gale, often seen in colonies because of the layering of lower branches, grows on edges of streams and lakes or in acidic peat bogs, and grows best in direct sunlight. Roots can fix nitrogen.

Is the plant edible?

Dried leaves have been used for making tea, and the leaves and nutlets have been added to meats for sage-like seasoning.

Is it medicinal or poisonous?

A branch tea has been consumed as a diuretic for gonorrhea, and Myrigalone-B is an extract from fruit exudates that is a potent antioxidant to inhibit free radical damage in liver. It is generally not regarded as poisonous, although an essential oil has been reported as toxic. It is listed as an arbortifacient.

Has it any economic uses?

Leaves have been a source of yellow dye and have also been used to improve the flavor and foam of beer before replacement by hops. Leaves are also insecticidal (campers have placed plants in tents for bug control). Varieties have been developed for gardens.

Sweet gale,* Myrica gale, *plant. Photo by Russ Schaffengerg.

Myrica Gale leaves, photo by Scott Milburn.

Wild Ones Conference

"Design with Nature: Creating healthy communities above and below ground" is the title of the Wild Ones Feb. 27 conference at the Radisson Hotel, Roseville. Advance registration is required. Search at www.eventbrite.com or go to http://for-wild.org/chapters/twincities/conference.html

Scientific names

Continued from page 1

into two or more, brand new names may be generated (again there are rules on the formation of names). But when two or more species are combined, then previous names must be examined and the oldest validly published (and yes, there are rules on valid publication) must be the one that is retained, even if it is a more obscure name. So *Botrychium rugulosum* (ternate grape fern) was confused with *B. dissectum* or *B. multifidum* but is now recognized as a separate species. *Aster azureus* (skyblue aster) was merged into *Aster oolentangiensis* and now is *Symphyotrichum oolentangiensis. Vaccinium macrocarpum* (large cranberry) changed to *Oxycoccus macrocarpus* but is now back as *Vaccinium macrocarpum.*

And to make life even more complicated, the shocking truth is not all taxonomists agree with each other (especially true in some of the difficult genera such as *Rubus*), and some plant groups simply have not yet received thorough examination (such as *Potentilla* or *Viola*).

So what's a person to do? Accept that nature is ever-changing and live with it by consulting major reference websites such as the *Flora of North America*, the *Angiosperm Phylogeny Group*, or the *Integrated Taxonomic Information System.* For a current (but, yes, changing) account of the nomenclature of Minnesota's vascular plants see my *Comprehensively Annotated Checklist of the Flora of Minnesota* at http://www.bellmuseum.org/plants/checklist2009-1.pdf

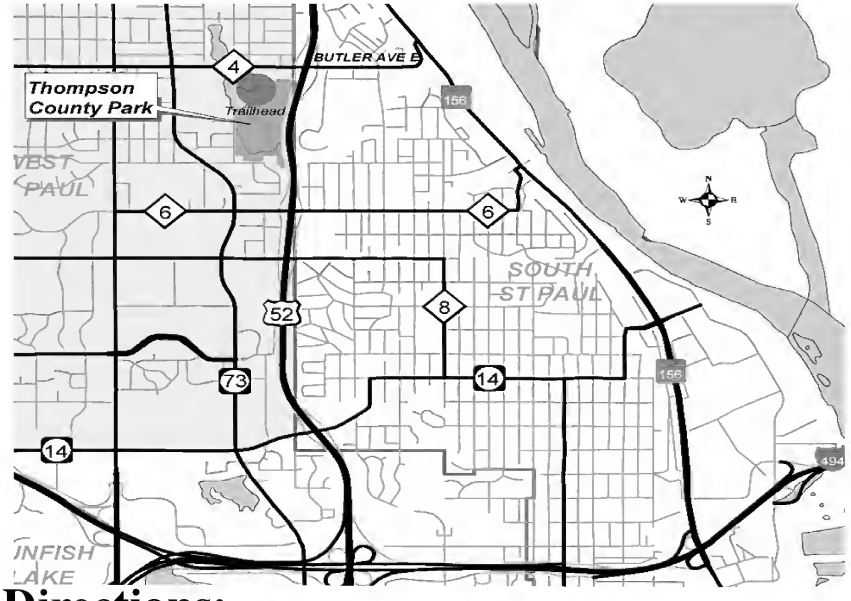
Book describes outdoor experiences in state

Our Neck of the Woods, a new book published by the University of Minnesota Press, contains articles about Minnesota wild areas that were printed in *Minnesota Conservation Volunteer* in the last 70 years.

Minnesota Native Plant Society
P.O. Box 20401
Bloomington, MN 55420

Winter 2010

Thompson County Park:
360 Butler Ave East, West St. Paul, MN 55118



Directions:

Take MN Hwy. 52 to the Butler Ave. E. exit in West St. Paul.
Go west on Butler 0.2 mile to Stassen Lane.
Go south on Stassen Lane to Thompson County Park.

Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

Volume 29 Number 2 **Spring 2010**

Monthly meetings

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Programs

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6 p.m. — Social period

7 – 9 p.m. — Program, Society business

May 6: "Gardening for Butterflies with Native Plants in Minnesota," by Pat Thomas, wildlife garden educator and photographer. **Plant-of-the-Month:** *Asclepias incarnata* (swamp milkweed).

June 3: "Reconstructing Native Plant Communities in Minnesota; New Seed Mixes, Planting Guidelines and Design Tools," by Dan Shaw, Minnesota Board of Water and Soil Resources; and Kenneth Graeve, MnDOT Office of Environmental Services. **Plant-of-the-Month:** *Bromus ciliatus* (fringed brome). **Plant Sale:** following meeting. All attendees may participate. For details, see article on page 5.

MNNPS website

For information about Society field trips, meetings and events, check the website: www.mnnps.org

Searching for the rare green dragon

by Derek Anderson

The mention of dragons often conjures up images of giant lizard-like animals flying, breathing fire and tormenting some kingdom. Usually, these mythical creatures capture a fair maiden and, in storybook fashion, there is a chivalrous knight willing to venture into the darkest depths to save her.

Did you know that there are dragons living in Minnesota? Luckily, these dragons are not nearly as dangerous as those well-known mythical creatures. These dragons happen to be plants.

Green dragon (*Arisaema dracontium*) is a member of the arum family. You may be more familiar with a relative, the common jack-in-the-pulpit (*Arisaema triphyllum*). The common name of green dragon possibly comes from the deeply divided leaves resembling a dragon's claw or perhaps by the tongue-like spathe that grows out beyond the spadix in the inflorescence.

Green dragon* (Arisaema dracontium), *photo by Derek Anderson.

This plant typically grows to heights between one and three feet and is flowering in May and June. It is found in the wet forests located along rivers. Until recently, it was thought that this plant was only

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In this issue

Watch for new display and brochure

by Elizabeth Heck

The Minnesota Native Plant Society has a new display to be used at various events throughout the year. It highlights our mission and the opportunities offered by the Society and also features Minnesota's state flower, the showy lady's slipper, *Cypripedium reginae*.

The display will help engage those who may not be aware of the Society and encourage growth in our membership. It is designed to be retractable for easy carrying, setup and storage. Look for it at our monthly meetings.

To further educate the public about Society activities, the Membership Brochure has been updated. The brochure is designed to print on any home or office printer for nominal printing costs, allowing board members and officers to print when needed, and allowing downloads from the website for anyone to print and share.

North American Prairie Conference is Aug. 1 - 5

The 22nd North American Prairie Conference will be Aug. 1 – 5 in Cedar Falls, Iowa, and surrounding areas. Its theme is "Restoring a National Treasure." For current information, go to the website: http://napc2010.org

Sand dunes are fascinating

This year's annual Society symposium, "Sand Dunes of Minnesota and Beyond," was held March 27 at the University of Minnesota's Bell Museum. It took an in-depth look at the unique sand dune communities which host many endemic and specialized species and increasingly rare plants.

Speakers described how inland and shoreland sand dunes were formed; the different shapes of dunes; the plants, birds, mammals, reptiles and amphibians that live on dunes in Minnesota, Wisconsin and Upper Michigan; and the management and restoration of dunes. 133 people attended the all-day event. It also included exhibits by a variety of firms and organizations. A highlight of this year's event was a showing of a portion of the film *Sand Country Wildlife* by well-known naturalist Walter Breckenridge. (See our president's column on page 7.)

Presenters Dr. Walter Loope (left) and Dr. Kerry Keen discuss dune research during a break in the program. Photo by Angela Hanson.

Green Dragon

(Continued from page 1)

found in the floodplain forests along the Mississippi River. However, in 2008, Derek Anderson found a few plants on a tributary of the Cedar River in western Mower County. That same year, Paul Bockenstedt, a contractor, found a few plants on the Blue Earth River in western Faribault County. Derek and Fred Harris checked into additional locations in 2009 and found dragons in more locations on the Blue Earth, Cedar, North Fork Zumbro, and Straight rivers and Dodge Center Creek.

As a result of these finds, we would like to more thoroughly search these and additional sites in 2010 to get a better handle of how extensive the plants are in southern Minnesota.

Are you interested in venturing into the dark depths of the green dragon's lair? All are welcome, but this may not be an adventure for the faint of heart. Typically the habitat is damp and may require crossing small streams, rivers, and/or backwater channels. Mosquitoes are usually present, and the stinging wood nettle is plentiful.

If you are interested in this adventure, please contact Derek Anderson at Derek.Anderson@state.mn.us

Would you like to be an editor?

We are looking for a member who would like to be a back-up editor or take over the position of producing the *Minnesota Plant Press.* As with all of the Society's positions, this is a volunteer job. The quarterly newsletter is currently produced with Adobe's InDesign program. For additional information, e-mail Gerry Drewry at gdrewry@frontiernet.net or call 651-463-8006.

Conservation Corner

by Beth Nixon

This is spring wildflower season and also legislative season. It is a good time to reflect on rules and regulations that might enhance the MNNPS mission and conservation of native plants across Minnesota.

One of the most important pieces of legislation in a long time started a couple of years ago with the constitutional amendment for dedicated outdoor heritage funding for the next 25 years. Its projects can go far to conserve and restore native plants and habitats. It will be up to all of us to revisit this issue each session an appropriations bill is crafted in the House and Senate. It is important that the language in future appropriations bills continues to reflect the importance of native plants as the cornerstone of restoration projects. The place to speak on behalf of this will continue for the foreseeable future to be the Lessard Outdoor Heritage Council, early in the legislative session.

This session's bill contains the following language for project requirements: *"to the extent possible, a person conducting restoration with money appropriated in this section must plant vegetation or sow seed only of ecotypes native to Minnesota, and preferably of the local ecotype, using a high diversity of species originating from as close to the restoration site as possible, and protect existing native prairies, grasslands, forests, wetlands, and other aquatic systems from genetic contamination."* While this language appears to quite deliberately have the intent of restoring lands across Minnesota with native plants, it could be made stronger by deleting the first clause, *"to the extent possible."*

Besides speaking at Lessard Council meetings in the winter (which can be hard to do during the middle of the work day), it is never too soon for MNNPS members and others to contact their representatives and ask them to consider making the language more explicit during the next writing of the appropriations bill by deleting this clause.

The implications of requiring use of native seed or plant material are significant. Creating a certain and steady market for native seed through the Lessard appropriations ought to allow for expansion of the volume produced by suppliers. This in turn can finally bring the volume to levels needed to support native seed supply for other programs, such as roadside prairies and federal conservation programs, and reduce the use of nonnative introduced species for grassland cover (which can still be commonly used and introduce a bio-stressor to nearby high quality plant communities).

For other conservation issues of merit to the MNNPS, visit the Society Blog from the homepage of the website.

Out-of-print books have been reprinted

Books about native plants, published by the University of Minnesota Press, that have been out of print are again available. They include:

- *Ferns and Fern Allies of Minnesota*, by C. O. Rosendahl and F. K. Butters;
- *A Flora of Northeastern Minnesota*, by O. Lakela;
- *Minnesota's Endangered Fauna and Flora*, by B. A. Coffin and L. Pfannmuller;
- *Trees and Shrubs of the Upper Midwest*, by C. O. Rosendahl; and
- *Vascular Plants of Minnesota: A Checklist and Atlas*, by G. B. Ownbey and T. Morley.

For a complete list of titles, see Minnesota Archive Editions at http://www.upress.umn.edu/html/backinprint.html

Benefits of blowdown in St. Croix State Park

by Gretchen Heaser, area resource specialist, State Parks and Trails, DNR. This is a summary of her talk at the Dec. 3, 2009, MNNPS meeting.

On July 11, 2008, straight-line winds blew through Pine County, affecting more than 420 acres of forest in Saint Croix State Park. Although the blowdown left thousands of mangled and uprooted trees, it displayed the perfect opportunity to restore some of Minnesota's rarest ecological communities.

Pine barrens and oak savannas are listed as critically imperiled in the state and are imperiled globally. These ecological communities depend on frequent disturbances, such as fire, to maintain the open, unshaded ground layer and to allow the sun-loving prairie species to thrive.

Historically, St. Croix State Park contained more than 3,000 acres of jack pine barrens and oak savanna habitats. Now only 70 acres remain. The St. Croix State Park Unit Resource Plan, established for the park in spring of 2008, set goals to restore 900 acres of these habitats by 2017. The blowdown presented the park with an opportunity to jumpstart this restoration.

St. Croix initiated a commercial timber sale in the fall and winter of 2008 that harvested and salvaged the 420 blowdown acres and an additional 250 adjacent acres that were outlined in the plan. The timber sale was the first step in the restoration effort to selectively remove the downed timber and prepare the area for prescribed fire. The harvest was completed by December 15, 2008, and prescribed burning was carried out in the southern extent of the sale area in the spring of 2009. Additional prescribed burns are scheduled for the 2010 field season.

Jack pine savanna in St. Croix State Park. Photo by Gretchen Heaser, courtesy of Minnesota DNR.

Vegetative responses already observed in the restoration area have varied from alum root, prairie phlox, hoary and hairy puccoon, veiny pea, spreading dogbane, frostweed/rock rose, wood lily, butterfly milkweed, low bindweed, pale vetchling, big and little bluestems and other grasses, and prairie forbs.

MNNPS welcomes new members

The Society gives a warm welcome to 33 new members who joined during the first quarter of 2010.

Listed alphabetically, they are:
Caleb Ashling, Minneapolis;
Bruce Beese, St. Paul;
Tiffany Blackwell, Prior Lake;
Rosanne Busch, Lonsdale;
Monika Chandler, Falcon Heights;
James Crants, Minneapolis;
Heather Cusick, Minneapolis;
Tracey Dickinson, St. Paul;
Dr. William E. Faber, Brainerd;
Valerie Galajda, Minneapolis;
Jennifer Gillen, Minneapolis;
Lisa Gilliland, Hugo;
Matthew Graeve, Little Falls;
Melissa Hansen, Golden Valley;
Bill Hogseth, Menomonie, Wis.;
Theresa Klaman, Lino Lakes;
Jeanne LaBore, Minneapolis;
Beth Landahl, Minneapolis;
Doug Livingston, Brainerd;
Walter Loope, Munsing, Mich.;
Don Luce, Minneapolis;
Onen and Sheila Markeson, Bemidji;
Nora and Scott McPherson, Hopkins;
Keir Morse, Lindstrom;
Gordon Murdock, Minneapolis;
Bob Neal, White Bear Lake;
Anna Peschel, St. Paul;
Imke Schmitt, Minneapolis;
Molly Schweinfurter, Redwood Falls;
Christopher Smith, St. Paul;
Carol Strojny, St. Paul;
Connie Taillon, Stillwater;
Virginia Wright-Peterson, Rochester.

Looking at lichens

by Imke Schmitt, Ph.D.,assistant professor, plant biology, University of Minnesota. This is a summary of her presentation at the Feb. 4, 2010, MNNPS meeting.

Lichens are ubiquitous elements in all ecosystems. They can grow on various substrates such as rock, bark, soil, or man-made surfaces including abandoned cars, walls, and metal signposts. Whatever material the lichen grows on, it has to be in the same place for a long period of time. Lichens are very slow growing and need substrates that are not changing much over time (trees in old growth forests, graveyard stones, old walls). If that condition is fulfilled, lichens can grow almost anywhere, from saltwater spray zones, to the tropical rain forest, to central Antarctica, where they live submerged in rock.

Lichens are successful in colonizing diverse niches in extreme habitats because they consist of two or more symbiotic partners that aid each other in survival. The main body of the lichen is made up of a fungus, which is using a special form of nutrition — it houses microorganisms that can use the sunlight to produce sugars through photosynthesis. The sugars serve as food source for the fungus. The photosynthetic microorganisms are single-celled green algae or cyanobacteria. This mutual symbiosis makes the lichen, which is more precisely called "lichenized fungus," nutritionally independent of the substrate it lives on.

A second property makes lichen-forming fungi well adapted to extreme environments — when conditions are unfavorable, e.g. during draught or extreme UV exposure, the lichen body dries out and all metabolic activities stop. In this condition, the lichen is very resilient to environmental stress. When conditions improve, e.g. when water vapor is available, the lichen immediately begins to be metabolically active again.

Lichen-forming fungi are very sensitive to certain human influences. For example, lichens are very sensitive to sulfur dioxide, the chemical responsible for acid rain. Changes in pH value caused by the presence of this substance can kill the entire lichen flora of a region. Human activities that cause changes in microclimate, nutrient supply, and availability of permanent structures for attachment, such as agriculture and logging, are also threatening the lichen flora. Since lichens react to such influences more quickly than vascular plants, they have been used extensively as biological indicators.

Many lichens produce so-called lichen substances that give them a vivid color or strong unpleasant taste. Because of the presence of these natural products (secondary metabolites), lichens have a variety of traditional and present day uses. They can be used for dyeing wool and cloth; they are used as ingredients of perfumes, or medicines. Animals, such as reindeer, eat lichens to survive the winter, and birds use lichens as nesting materials.

Research on lichen systematics involves collecting, identifying and herbarium data-basing specimens, followed by molecular analysis. We sequence and compare fragments of the DNA of the fungal partner to understand how lichen-forming fungi are related to one another and how they fit into the fungal tree of life. We know now that the lichen lifestyle evolved many times independently during fungal evolution. Identifying lichens often requires information about the chemical composition of the specimen. Simple tests to identify lichen compounds are so-called spot tests, where a droplet of reagent, e.g. bleach, is added to the specimen and causes a color change of the fungal mycelium. Some compounds fluoresce and can be visualized under a UV lamp. In the lab, we use thin layer or high pressure chromatography to analyze lichen compounds.

It is not easy to say whether the relationship between the fungal partner and the photosynthetic partner in the lichen symbiosis is one of mutual benefit. The fungal partner has been described as the dominant partner in the relationship, because it controls the morphology of the lichen body, suppresses sexual reproduction in the algal partners, and uses structures found also in parasitic fungi (haustoria) to extract sugars from its photosynthetic partner. Also, most lichen fungi are not known to occur as free-living species, whereas the algal partners thrive well without their fungal symbiont. For these reasons, the lichen symbiosis has been described as "controlled parasitism." However, looking at the lichen symbiosis from an ecological standpoint, it is clear that neither of the two partners can survive without the other in the types of habitat they occur in. Thus most lichenologists today agree that a lichen is a mutualistic symbiosis.

Plant sale: June 3

Our annual native plant sale will be held on the patio outside Dakota Lodge at the end of our June meeting. We encourage all who attend to bring their own native plants to the sale. Those who donate plants will get the first choices.

Bring labeled, potted plants by 6 p.m. so volunteers have time to price them and set up the area. Only native plants from Minnesota can be included. No cultivars (horticultural selection) of native plants should be brought (e.g. 'Goldstrum' black-eyed Susan). Plants should be from your own property, or other private property (with that owner's permission); not from public property. Dig your plants two to four weeks before the sale. To volunteer, contact Ken Arndt at karndt@ccesinc.com or 651-249-7080.

Register now for a field trip

by Ken Arndt

The MNNPS has planned field trips for spring and summer. A few more trips are in the planning stages for late summer and fall. You can register for any of the field trips by visiting our website (www.mnnps.org) and going to the field trip page or by attending one of our monthly meetings, where sign-up sheets are out for the members. Information will be posted on the website as details become available.

Field trips are just one of the benefits of being a member of our Society. Most trips have a limited number of registrants due to site-sensitive areas we will encounter. This year's field trips will take participants to several regions of the state, where you will see spring wildflowers of forests and wetlands; sand dune communities in Minnesota and Wisconsin; and many other unique plant communities.

Saturday, April 24, 10 a.m. to 1 p.m., join Scott Milburn, MNNPS president and senior botanist/ecologist for Midwest Natural Resources; and Daniel Jones, MNNPS board member and senior ecologist for Barr Engineering, at Nerstrand-Big Woods State Park for a morning of hiking and plant identification. This fine example of "Big Woods" is home to many spring ephemerals, including bloodroot, trillium, hepatica, rue anemone and bellwort. Participants will also see the habitat where the federally endangered dwarf trout lily grows.

Saturday, May 15, 9 to 11 a.m., join Elizabeth Heck, MNNPS board member and Eloise Butler Wildflower Garden naturalist; and Shirley Mah Kooyman, MNNPS vice president and wild flower enthusiast, for a stroll through the Eloise Butler Wildflower Garden, the oldest wildflower garden in the country. The 103-year-old garden is home to over 500 species of plants, all within 14 acres. We will visit the woodland and wetland areas and see many spring wildflowers, including lady's slipper orchids, hepatica, bloodroot, skunk cabbage, trilliums, baneberry, Virginia bluebells, bellwort, marsh marigold, false rue anemone, blue cohosh, and violets.

Saturday, May 22, 9 a.m. to 1 p.m., join Steve Eggers, senior ecologist for the St. Paul District Corps of Engineers, for a morning of wetland plant identification at Savage Fen Scientific and Natural Area in Savage, Minn. Savage Fen SNA is notable for its rare wetland plant community. A series of alkaline seeps and springs emerge from the base of a bluff formed of calcareous glacial deposits, which were left by the Des Moines lobe at the end of the Wisconsin Glacial period. This trip will take participants through a sedge-dominated fen, where you will be able to observe state-listed endangered, threatened and special concern species, including sterile sedge and white lady's-slipper orchids in bloom; and other showy fen species such as northern bog violet and shrubby cinquefoil.

Thursday, June 10, 6 to 8 p.m., join Karen Schik, Friends of the Mississippi River ecologist; Tom Lewanski, conservation director for FMR; and Dave Crawford, MNNPS member and "retired" DNR naturalist from Wild River State Park, for an evening of prairie plant identification at Hastings Sand Coulee SNA. This is a dry sand prairie of about 80 acres located just beyond the southern edge of Hastings. The largest of a few sand gravel prairies left in Dakota County, it is home to rare plants including James' polanisia (endangered) and sea-beach needle grass. This is a joint field trip with Friends of the Mississippi River and will be limited to 18 MNNPS members.

Sunday, June 13, 2 to 5 p.m., join Hannah Texler, DNR regional plant ecologist; and Virginia Blakesley, DNR SNA program staff, for an afternoon hike into Uncas Dunes SNA for a look at sand dune plant communities and the critters that call this place home. Uncas Dunes SNA is located within the Anoka Sandplain near Zimmerman and contains a relic dune field associated with Glacial Lake Grantsburg. Natural plant communities found here include oak savanna, oak forest, and wetland. The trip is a follow-up to this year's symposium on sand dune communities and will give participants a chance to see this place that was discussed during several of the talks.

Saturday, July 3, 4 to 6 p.m., join Barb Delaney, botanist and MNNPS member, for a hike into Wisconsin Sterling Barrens State Natural Area located south of Grantsburg, Wis., for another look at sand dune plant communities. Located in pitted outwash deposits laid down by glacial melt-water streams, Wisconsin Sterling Barrens State Natural Area contains a jack pine-Hill's oak dry forest interspersed with barrens openings and an extensive wetland of sedge meadow and shrub-carr. The gently rolling barrens openings are interspersed with prairie species. Several rare forbs are at or near their natural eastern range limit. Sterling Barrens is owned by the National Park Service and the Wisconsin DNR. The site was designated a State Natural Area in 1979 and expanded to include the St. Croix Scenic Riverway in 2002.

Blooms Day is May 15

Metro Blooms is sponsoring Blooms Day from 8:30 a.m. to 1 p.m. May 15 at Kenny Community School, 5720 Emerson Ave. S., Minneapolis. The group sponsors rain gardens and encourages urban native plantings. For more information, go to www.metroblooms.org

Plant Lore

by Thor Kommedahl

What is spring-beauty?

Spring-beauty, also called Virginia spring-beauty, is *Claytonia virginica,* and it has been included in the purslane family; now some include it in the *Montia* family (Montiaceae). It is called "Miskodeed" (an Indian name) in Longfellow's *The Song of Hiawatha.*

Saw the earliest flower of Spring-time,
Saw the beauty of Spring-time,
Saw the Miskodeed in blossom.

How did it get its names?

Its attractive spring flowers in large patches describe its name. The species is found westward into Minnesota. *Claytonia* is named for John Clayton (1694-1773), a naturalist in colonial Virginia.

What do the plants look like?

Spring-beauty is a low perennial plant with clusters (racemes) of five pink or whitish petals that are striped with dark pink veins. There are two sepals. It has a pair of grass-like, opposite leaves, each with a single central vein. Shoots grow from a corm. Seeds are enclosed in a three-valve capsule. The blooms are insect-pollinated (mostly bees and butterflies).

Where does the plant grow?

It is a native plant growing in rich woods and thickets in the eastern half of Minnesota, except the arrowhead. It is an early spring flower that is gone by midsummer.

Is it edible, medicinal, or poisonous?

It is edible. Native Americans and colonists ate the corms for food; the corm has a sweet, chestnut-like flavor. It is not medicinal or poisonous.

Has it any economic value?

Only in gardens or as ground cover; it is spectacular in large patches and may bloom for a month. Seeds mature in early summer and can be sown as soon as they ripen.

Spring-beauty (*Claytonia virginica*), photo by Shirley Mah Kooyman.

President's column

by Scott Milburn

Spring has arrived a bit sooner than expected, but is very welcome. As we enter this season, we can reflect on recent highlights for the Society. We have just hosted another great symposium, looking at the Sand Dunes of Minnesota and Beyond, at the Bell Museum. We had a great lineup of speakers. I would like to also point out the hard work and efforts of my fellow symposium committee members — Erika Rowe, Angela Hanson, Shirley Mah Kooyman, and Daniel Jones.

One addition to the symposium was the film *Sand Country Wildlife* by Walter Breckenridge. Walter served as Bell Museum director for nearly 25 years. During this time, he filmed a series documenting the natural history of Minnesota. Several of these films had been transferred to digital format. However, one still remaining on 16 mm film — *Sand Country Wildlife* — was pertinent to the symposium topic. We worked with Barbara Coffin of the Bell Museum, and our board approved donating $1,300 of Society funds to transfer the film to digital format. We showed much of the film at the symposium and will show it again at a monthly meeting. This is one of the most important contributions we have made. The film not only documents a component of Minnesota's natural history, but also a great natural historian.

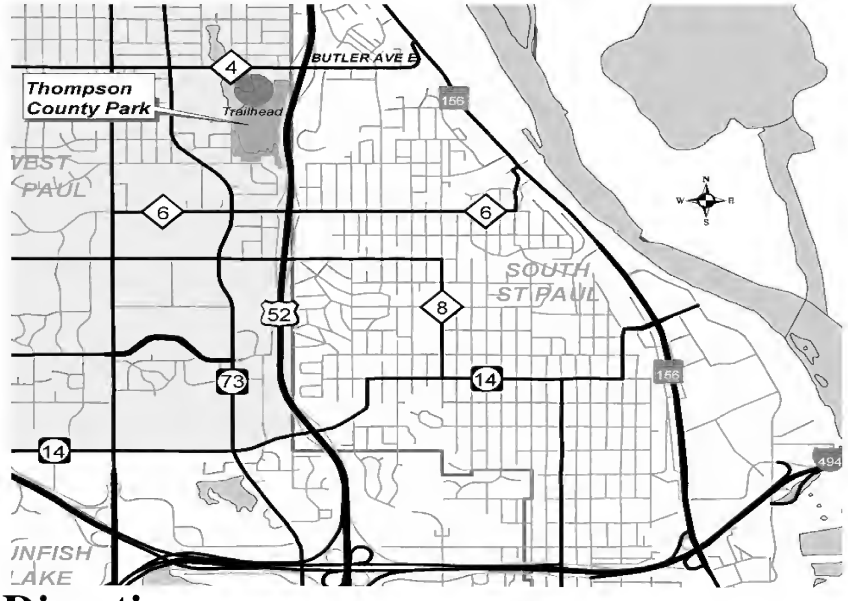
In other news, I thank Angela Hanson for her contributions to the Society. She has been actively involved and is a board member. She has been extremely generous with her time and efforts. Angela will soon be taking a job in Austin, Texas, and will be leaving the board. We will miss her.

At a recent board meeting, the idea of paying for memberships and symposium registrations online was discussed. We now have a small group looking into the specifics. I can also announce that Daniel Jones was elected and Russ Schaffenberg re-elected to the board in March.

Minnesota Native Plant Society
P.O. Box 20401
Bloomington, MN 55420

Spring 2010

Thompson County Park:
360 Butler Ave East, West St. Paul, MN 55118



Directions:

Take MN Hwy. 52 to the Butler Ave. E. exit in West St. Paul.
Go west on Butler 0.2 mile to Stassen Lane.
Go south on Stassen Lane to Thompson County Park.

Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

Volume 29 Number 3 **Summer 2010**

Monthly meetings

Thompson Park Center/Dakota Lodge
Thompson County Park
360 Butler Ave. E.,
West St. Paul, MN 55118

Programs

The Minnesota Native Plant Society meets the first Thursday in October, November, December, February, March, April, May, and June. Check at www.mnnps.org for more program information.

6 p.m. — Social period

7 – 9 p.m. — Program, Society business

Oct. 7: "State parks: A legacy of preserving history, natural resources and native flora and fauna," by Chris Niskanen, outdoors editor, *St. Paul Pioneer Press*.

Nov. 4: To be announced. (Check the website.) **Seed exchange.**

Dec. 2: To be announced. (Check the website.)

Bring native seeds for the annual exchange

The Society's annual seed exchange, which will be held at the Nov. 4 meeting, provides an opportunity for members to obtain seeds of native plants at no cost. Seeds must be placed in marked envelopes — no bulk piles will be accepted.

MNNPS website

For information about Society field trips, meetings and events, check the website: www.mnnps.org

Garden for Butterflies with Native Plants

by Pat Thomas, wildlife gardener, educator and photographer. This is a summary of her talk at the May 6, 2010, MNNPS meeting.

Butterflies are beautiful insects with four distinct developmental stages: egg, caterpillar, chrysalis and butterfly. You can enjoy all four stages by providing nectar plants for adult butterflies and larval or host plants for caterpillars. Native plants are the best choice for your butterfly garden. In spring they are an early nectar source, and in fall, despite low temperatures, they continue to supply nectar at a crucial time for migrating butterflies and those that remain. Native plants also serve as food for caterpillars, ensuring new generations of butterflies.

Select plants appropriate for your site conditions. Place at least some of the plants in an area sheltered from strong winds. You can create a windbreak with trees or shrubs or by covering a fence or trellis with vines. Remember that you don't have to have a large yard to attract butterflies; container gardening is always an option.

Fritilary on butterfly-weed* (Asclepias tuberosa)*, photo by Pat Thomas.

Try to have flowers blooming from early spring to late fall, and group plants closer together than in a traditional garden. Plant in masses of color, and keep plants that attract

Continued on page 4

In this issue

Conservation Corner

by Elizabeth Nixon

Why value native plants? Conserving native plants as part of natural, healthy ecosystems in a human-dominated and climate-changing world depends on awareness of the many values, uses, and services such plants and ecosystems provide for humans.

More diverse grasslands can be conserved through heightened awareness of carbon sequestration value and through wise harvesting for biofuels. Undrained peatlands can conserve a vast array of native species and provide a very important carbon sink. Policies for native ecosystems as carbon sinks may have potential to go a long way towards valuing and conserving native plants. Local foods, regionally produced, eaten in concert with the seasons, are a popular value that has the potential to be significantly expanded into the realm of regional native plant species.

Victoria Ranua, MNNPS member, recently volunteered to educate Y campers about Minnesota native plant food values. Cattail root starch is a great bread-baking ingredient, and who knows, wise harvesting for this purpose could be a management tool for the invasive hybrid cattail species.

Humans value protection against flooding of urban areas and homesteads. Belief that we can drain entire watersheds and use energy-intensive engineering solutions as a way out of the flood devastation in their wakes is losing popularity to large scale watershed-based, energy-neutral wetland restoration efforts that can also restore native plant diversity to large areas.

We encourage you to consider these ideas and promote them in your various professional and community activities. Look into the recently developed Natural Capital Project spearheaded by The Nature Conservancy and others, recently joined by Minnesota's Institute on the Environment. Those goals can benefit our mission.

President's Column

by Scott Milburn

We recently held our quarterly board meeting in June, with Daniel Jones officially joining the board. The board voted Ken Arndt back to serve the remainder of Angela Hanson's three-year term. We also held officer elections, with all four positions remaining the same. This is now my fifth term in this position, and I would like to continue to grow as we have as a society.

Obviously, we would like to continue with our great programs and field trips, but we also need to grow our membership. This can be accomplished in a number of ways, including making membership renewals easier. We have recently opened a PayPal account in order to make renewing easier. This is not on the website yet, but we anticipate that everything will be fully running by the time we all need to renew our memberships. I would like to thank Katy Chayka for setting this up, and also for all of her work on the blog.

The board also discussed possible topics for the 2011 Symposium. For the past several years, we have been focusing on a region or landform, but the board discussed the possibility of exploring large-scale concepts that are being examined worldwide. Discussions will continue for the next several months, with a topic to be announced in the next newsletter. As always, we will be looking for volunteers for the event.

Plant sale income up

The June Plant Sale is a source of income for the Society. We received $566 this year — higher than in 2009 and 2008; lower than in 2007 and 2006. Totals for the last five sales are: 2010 - $566; 2009 - $416; 2008 - $450; 2007- $842; 2006 - $911.

MNNPS Board of Directors

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Vice President: Shirley Mah Kooyman, shirley.mah.kooyman@mnnps.org

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Treasurer, membership data base**: Ron and Cathy Huber,** ron.huber@mnnps.org

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***Minnesota Plant Press* Editor: Gerry Drewry,** 651-463-8006; plantpress.mnnps@mnnps.org

Roadsides for Pollinators

by Laurel Sundberg, interpretive naturalist, Lowry Nature Center.

Our native pollinators, bees and other insects, are unable to find the real estate they need to survive and thrive. They aren't able to enter into a bidding war with developers over land being gobbled up at an estimated rate of four acres per minute across the U.S.

The Minnesota DNR has a new poster advocating use of native plantings along roadsides as a way to combat habitat loss. The studies focus on roadsides because they serve as connections to key habitats and are often set aside from further development. We can't argue that a narrow ditch is comparable to keeping the "back 40" a prairie, but any small positive change can make a difference.

An estimated 60 - 80 percent of the world's flowering plants require some sort of animal pollinator to produce viable seeds. Many of our agriculturally important plant species are dependent on animal pollinators. These pollinators are often insects: beetles, flies, moths, butterflies, and especially bees. We tend to think of the domesticated European honeybee as the key pollinator, but there are many more native bee species that have developed as part of Minnesota's ecology and are adapted to our climate and plants.

These native bee species, along with other insect pollinators, are losing ground when it comes to finding high quality habitat. To support these winged pollinators, we need to provide food, shelter, and space. Food sources for these bees come in the form of pollen and nectar. For shelter, solitary bees will excavate an underground nest, or use an existing tunnel into a pithy or woody stem. Social bumblebees recycle old mouse nests to create their annual colonies. The main idea is these bees need a diversity of native plants and soil substrates to create their homes.

Here's the encouraging part: studies have found roadsides with abundant native wildflowers and grasses support twice as many bees and about 35 percent more bee species than roadsides with monocultures and/or exotic plants. The more diversity, the higher the number of insect pollinators. A 50/50 mix of grasses to forbs attracted the most pollinators. Leave a few shrubs or trees, and the mix should prove irresistible for native bees, butterflies and many others.

What's a homeowner or native plant connoisseur to do? Keep planting natives. Some plants of very high value to pollinators are: aster, bergamot, Culver's root, goldenrod, giant hyssop, leadplant, milkweed, partridge pea, penstemon, prairie clover, spiderwort, and sunflower. These are plants many of us are already focused on cultivating in our gardens.

If you have a roadside already sporting this kind of diversity, try to reduce mowing to only a strip along the edge, and reduce pesticide and herbicide use. We probably all enjoyed listening to the hum of bees working in the garden. Imagine if we could bring back that kind of beauty to our roadsides — and help our native pollinators in the process.

For more information, a poster based on the article "Pollinators and Roadsides" is available from the MN DNR at http://files.dnr.state.mn.us/assistance/nrplanning/community/roadsidesforwildlife/beesforroadsides.pdf

Field trips

MNNPS field trips are being planned for late summer and fall. Check the website (www.mnnps.org) periodically for updates.

The Bell Museum also conducts field trips. They are posted at www.bellmuseum.org

MNNPS welcomes new members

The Society gives a warm welcome to 30 new members who joined during the second quarter of 2010. Listed alphabetically, they are:

Lynnette S. Anderson, St. Croix Beach;
Paul D. Anderson, Edina;
Sara Barsel, Roseville;
John Berquist, Rochester;
Karin Ciano, Minneapolis;
Jordan and Miranda Curzon, St. Paul;
Ken Graeve, St. Paul;
Holly Hamilton, Plymouth;
Brooke Karen Haworth, St. Paul;
Carol Hepokoski, Rochester;
Erica Hoaglund, St. Paul;
Mari Ito, Shoreview;
Susan Jones, St. Paul;
Tara Kelly, Afton;
L. Alden Kendall, Duluth;
Alexis McCarthy, Minneapolis;
Randall Neprash, Roseville;
Melvin M. Prantner, Duluth;
JoAnn and Richard Schnitzus, Minnetonka;
Dan Shaw, St. Paul;
Greg and Pam Spar, Big Lake;
Laurel Sundberg, Minnetonka;
Evelyn Timm, Duluth;
Joe White, Minnetonka;
Karin Wolverton, Richfield;
Jason Yadley, Oakdale;
Estella Yeung, Oakdale.

Treasurers' report

The 2010 second quarter treasurers' report from Ron and Cathy Huber shows income of $8,918.79 and expenses of $7,319.52. They estimate that expenses for the remainder of the year will be about $3,700. Assets total $26,368.40, including $8,794.69 in CDs.

Major sources of income for the year were the symposium ($5,275), memberships ($2,728) and the plant sale ($566). Expenses included the symposium ($3,857), grant to digitize film ($1,300), printing ($728), new display stand ($354) and postage ($322).

Butterfly gardening
(Continued from page 1)

butterflies away from busy streets. Select the widest variety of plants possible, and incorporate different layers of vegetation. Trees, shrubs, grasses, wildflowers, groundcovers and leaf litter are all important. Use natural areas near your home to inspire your garden design.

Designate one area in your yard that can remain undisturbed (no mowing, weeding or digging). Place the larval plants there with leaf litter as mulch. Allow those plants to remain standing throughout the winter. In spring, if necessary, gently cut back the plants. If possible, let the old plant material remain on site to let overwintering stages continue their life cycle.

You can also attract butterflies by providing very shallow drinking areas with rocks and twigs so butterflies can perch and drink. Overripe fruit such as bananas, watermelon, oranges, peaches, and apples will be appreciated by some butterflies. Others may come to a salt lick.

Butterflies are cold blooded and cannot fly until their muscles are warmed. Some, like monarchs, can shiver to warm flight muscles, but most need to use the sun. Locate part of your garden in a sunny, warm location. Butterflies will bask on rocks, tree trunks, stone or concrete paths, mulch, evergreens and bare soil.

Do not use any insecticides or pesticides. These products kill all insects including butterflies. Encourage neighbors to stop spraying.

Our yards are important, but they cannot replace butterflies' natural habitats. Do everything you can to protect trees, wetlands, air and water, grasses and flowers so we may always be blessed with butterflies.

Black swallowtail on purple coneflower (*Echinacea angustifolia*), photo by Pat Thomas.

Some host plants for caterpillars

Trees

Juneberry and Serviceberry, *Amelanchier* species;
Birch, *Betula* species;
Pagoda dogwood, *Cornus alternifolia;*
Poplar and aspen, *Populus* species;
Wild plum, *Prunus americana;*
Pin cherry, *Prunus pennsylvanica;*
Chokecherry, *Prunus virginiana;*
Oak, *Quercus* species;
Staghorn sumac, *Rhus typhina;*
Willow, *Salix* species.

Flowers

Pearly everlasting, *Anaphalis margaritacea;*
Columbine, *Aquilegia canadensis;*
Smooth Rock Cress, *Arabis glabra;*
Milkweed, *Asclepias* species;
Aster, *Aster* species;
Turtlehead, *Chelone glabra;*
Goldenrod, *Solidago* species;
Violet, *Viola* species;
Golden Alexander, *Zizia aurea.*

Shrubs

Dogwood, *Cornus* species;
Smooth wild rose, *Rosa blanda;*
Prairie rose, *Rosa arkansana;*
Nannyberry, *Viburnum lentago;*
Blueberry, *Vaccinium angustifolium.*

Vines

Hog peanut, *Amphicarpa bracteata;*
Wild cucumber, *Echinocystis lobata;*
Hops vine, *Humulus lupulus.*

Some nectar plants for butterflies

Perennial flowers

Allium species (including common garden chives);
Yarrow, *Achillea;*
Anise hyssop, *Agastache foeniculum;*
Milkweed, *Asclepias* species;
Aster, *Aster* species;
Turtlehead, *Chelone glabra;*
Prairie thistle, *Cirsium flodmani* (a native thistle);
[Note: Thistle is both a nectar and larval plant, but can be invasive. Plant only native species.]
Coreopsis, *Coreopsis* species;
Coneflower, *Echinacea* species;
Joe Pye weed, *Eupatorium maculatum;*
Boneset, *Eupatorium perfoliatum;*
Blanketflower, *Gaillardia* species;
Sunflower, *Heliopsis* species;
Blue flag iris, *Iris shrevi;*
Liatris, blazingstar, *Liatris* species;
Wild bergamot, *Monarda fistulosa;*
Black-eyed Susan, *Rudbeckia hirta;*
Rose, *Rosa* species;
Compass plant, *Silphium laciniatum;*
Cup plant, *Silphium perfoliatum;*
Goldenrod, *Solidago* species;
Vervain, *Verbena* species;
Ironweed, *Vernonia* species;
Violet, *Viola* species.

Shrubs and trees

New Jersey tea, *Ceanothus americanus;*
Chokecherry, *Prunus virginiana;*
Sumac, *Rhus* species;
Basswood, American linden, *Tilia americana;*
Wild plum, *Prunus americanus;*
Blueberries, *Vaccinium* species;
Blackberries, raspberries, and dewberries, *Rubus* species.

Field guides

Butterflies

Jim P. Brock and Ken Kaufman, *Butterflies of North America*; Houghton Mifflin Company, N.Y., 2003.

Jeffrey Glassberg, *Butterflies through Binoculars: The East*; Oxford University Press, N.Y., 1999.

Larry Weber, *Butterflies of the North Woods*, 2nd edition; Kollath-Stensaas, Minn., 2006.

Caterpillars

Thomas J. Allen, Jim P. Broch, and Jeffrey Glassberg, *Caterpillars in the Field and Garden*; Oxford University Press, N.Y., 2005.

David L. Wagner, *Caterpillars of Eastern North America*; Princeton University Press, N.J., 2005.

Butterfly Gardening

Claire Hagen Dole, editor, *The Butterfly Gardener's Guide*, Brooklyn Botanic Garden Guides, N.Y., 2003.

Judy Burris and W. Richards, *The Life Cycles of Butterflies*; Storey Publishing, Mass., 2006.

Xerces Society and the Smithsonian Institution, *Butterfly Gardening: Creating Summer Magic in your Garden,* 2nd edition; Sierra Club Books, San Francisco, 1998.

Threatened species list still stalled

Minnesota's list of endangered, threatened, and special-concerned plants, animals, and other species has not been updated since 1996, although the law requires an update every three years.

Hearings were held on a proposed revision in 2000, but then the process stopped. The latest revision was completed in December 2009. It includes 180 new species and delists 29. This list has been discussed within the DNR, but it has not been approved by Commissioner Mark Holsten, according to an article by Tom Meersman in the July 6 Minneapolis StarTribune.

Once Holsten approves the list, it will be sent to Gov. Tim Pawlenty for his approval. After that, it can be published in the state register and assigned to an administrative law judge for public hearings. This process is expected to take from six months to a year. Until then, the new list cannot be used for enforcement against developers.

***Clump of hoary puccoon** (Lithospermum canescens), photo by Peter Dziuk.*

Plant Lore

by Thor Kommedahl

What is hoary puccoon?

Hoary puccoon is *Lithospermum canescens* in the forget-me-not family and is native to Minnesota.

How did it get its names?

The genus name comes from the Greek *lithos,* a stone, and *sperma*, a seed, referring to the hard seeds (nutlets) that resemble small, polished stones. Hoary describes its hairy leaves and stems, and *canescens* means "turning hoary white." Puccoon is an Algonquian name for the reddish dye extracted from the stout roots.

Where does it grow?

It thrives in prairies, open woods, and on roadsides, often in dry, sandy soil, in almost all counties in Minnesota except the Arrowhead.

What does the plant look like?

It is a perennial nine to 18 inches tall with alternate, narrow, silky gray leaves, each with a prominent mid-rib. Flowers have five yellow-orange petals in forget-me-not-like lobes that flare out from a tube that also hides the stamens (with brown anthers). It blooms April through June.

Is it medicinal or poisonous?

Captain John Smith (1612) saw Indians beat dried roots to a red powder, which was applied to soothe aches and swellings. Indians also brewed a leaf tea for treating fevers and seizures. Shikonin derivatives able to combat bacterial infections of human skin have recently been isolated from roots. It is not poisonous or edible.

Has it economic uses?

Indians used the red dye for pottery, basketry, and personal ornaments. It can be grown in wildflower gardens, in sunny and dry locations, and from cuttings collected in July.

A genetic conservation program for Minnesota ash

by Andrew David, Michael Reichenbach and Julie Hendrickson, associate professor, adjunct assistant professor and graduate student respectively, Department of Forest Resources, University of Minnesota,
This article is a summary of a talk given at the March 4, 2010, meeting of the MNNPS.

Minnesota's ash resource

Minnesota is host to three species of ash: white ash (*Fraxinus americana*), green ash (*F. pennsylvanica*) and black ash (*F. nigra*). White ash is an upland species at the northern edge of its range in extreme southeast Minnesota; both black and green ash are common lowland hardwoods. Green ash is found throughout the state as individual trees in the forest; black ash is found primarily in the northern third of the state in larger densities.

Minnesota's 900 million ash trees have cultural, ecological and economic value. Black ash is very important in native cultures as a source of wood for ash baskets and specialty products. Ecologically, black and green ash are the most important hardwoods in the lowland forest community, representing 51 percent of the lowland hardwood cover type in Minnesota. The next closest species is silver maple, which represents 11 percent of this cover type. The most recent economic information from the Minnesota Department of Natural Resources estimates annual ash stumpage at $15 million. Although Minnesota's ash resource is primarily small diameter trees, both black and green ash provide a source of pallet, saw and veneer logs to manufacturers that promote employment in rural portions of the state.

Emerald ash borer

These important species are threatened by an exotic invasive insect species, *Agrilus planipenni,* or emerald ash borer. EAB was introduced from Asia, most likely on dunnage associated with an overseas shipment. It was first noticed in 2002 in the Detroit, Mich.,/ Windsor, Ontario, area.

The life cycle for EAB is fairly simple. Adults emerge in late May through August, leaving a characteristic D-shaped hole in the bark. As adults, they are active potentially for a month while they eat only the foliage of ash trees, mate, and lay eggs under the bark of ash trees. The developing larvae then girdle the tree by eating the phloem. Most larvae then become prepupa and spend the winter in shallow chambers in the sapwood or in thick bark. However, research has shown that some larva do not turn into prepupa until the following fall, requiring two years to complete their metamorphosis. Thus, although adults emerge during summer, larvae may be under the bark during any time of year. Therefore, because of the possibility of two-year larvae, we must assume that all wood from an infected tree is infected. Unlike most borers that target larger trees, EAB is capable of utilizing seedlings down to as small as one-half inch in diameter. Depending on the number of beetles infesting a tree, death occurs within one to five years.

As of March 2010, EAB has been found in Michigan, Illinois, Indiana, Ohio, Kentucky, Wisconsin, Minnesota, Missouri, Pennsylvania, New York, Maryland, Virginia, West Virginia, Ontario, and Quebec. Currently, all of the lower peninsula of Michigan is considered infected, and new outbreaks are no longer reported or tracked. It is estimated that EAB already is responsible for the death of over 20 million ash trees, with roughly 10 million ash trees having succumbed in the southeast Michigan/northwest Ohio region. In May 2009, EAB was detected near Victory, Wis., across the Mississippi River from Houston County, Minn. A short while later, EAB was confirmed in a little over 60 trees in St. Paul's South St. Anthony Park area, then on the University's St. Paul campus, and most recently in Prospect Park in Minneapolis, about one-half mile west of the original infestation. Because it is usually three to six years before an EAB infestation is identified, early detection and strict adherence to quarantines on moving nursery stock and firewood are key to limiting EAB movement.

Biological efforts to control the spread of EAB have been largely unsuccessful because EAB does not appear to use long-range pheromones that would be useful in trapping the insect, and there are no known biological control agents. Without effective pheromones, monitoring activities are reduced to watching and waiting for new outbreaks. Once a new outbreak is located, the common practice has been to eradicate every ash tree in a half-mile radius and then establish a quarantine area.

Due to the lack of an effective control for EAB, the number of ash species affected, the range of susceptible tree sizes, and the fact that no natural resistance to EAB has been detected, it is prudent and proactive to prepare for an invasion of EAB in Minnesota. This preparation should take the form of a gene conservation effort in black and green ash to capture the genetic variation of these two species. This gene conservation effort would preserve the genetic variation for a future point in time when EAB can be controlled and both species can be reintroduced to Minnesota using locally adapted seed sources.

In an effort to combat EAB

in Minnesota, the Minnesota Department of Agriculture has established an EAB action team and a scientific panel to advise on the best management practices in and around infection areas. With assistance from the University of Minnesota's Agricultural Experiment Station Rapid Agricultural Response Fund, we have initiated a genetic conservation program for ash species in Minnesota. The two goals of this project are to:

• Capture the genetic variation of Minnesota's black ash (*F. nigra*) and green ash (*F. pennsylvanica*) resource by collecting open pollinated seed from these species, creating an *ex situ* seed bank, and

• Evaluate different seed collection strategies using molecular tools to determine the most efficient method. The ideal collection strategy will capture more than 80 percent of the genetic variation in a population as well as capture traits that allow adaptation to local growing conditions.

Both green and black ash are wind-pollinated and disperse seed via wind. Green ash is dioecious, meaning there are male and female trees, while black ash is dioecious or polygamous, with male and female flowers on the same tree. Based on the life history traits of these species and information found in provenance trials, it would be appropriate to collect seed from unrelated individuals in different portions of the state to meet the two goals of the seed collection project.

Genetic conservation via seed collections

The ash seed collection project actually has three different sampling strategies — population collections, ecoregion collections, and volunteer collections. Population collections involve collecting 15-20 different populations per species, with at least 20 individuals per population. A minimum of 50 viable seeds per tree are collected, typically one to two inches of seed in the bottom of a grocery bag. Trees are separated by a distance of 150 feet or more to decrease the possibility of being related, and the collected seed is sent to the Natural Resource Conservation Service Plant Introduction Station in Ames, Iowa, where it is put into long-term storage.

Ecoregion collections utilize the Omernik Level III ecoregions to define seed collection areas. There are seven such ecoregions in Minnesota. The goal is to collect two to four inches of seed in the bottom of a grocery bag from 10-15 individuals per ecoregion. This seed is sent to the National Seed Laboratory in Dry Branch, Georgia, where it is put into long-term storage.

Volunteer collections come from seed collectors who may have been trained at one of our seed-collector workshops or may have heard about our collection effort through articles in local newspapers, or were linked to our collection efforts on the Internet. These collections are primarily single-tree collections and can range from a handful of seed to half a grocery bag. These smaller collections are shipped to the USDA Agricultural Research Service facility in Fort Collins, Colo., where they are stored.

Once seed is collected or is mailed to our laboratory in Grand Rapids by volunteer collectors, it is cleaned and shipped out to one of the three storage sites, based on how it was collected. There it is dried to an internal 8 percent moisture content and stored at -20^0 C. In this low-moisture, frozen state, the seed can remain viable for upwards of 20 years. This process is not meant to be a solution; rather, it serves as a method for storing the genetic variation found in the ash species until such time as EAB can be controlled. Once EAB can be controlled, this seed can be used to reintroduce ash to areas where it has been extirpated, or used for some other research or breeding purpose.

Evaluating the collection strategies

The three collection strategies (population, ecoregion and volunteer) represent three very different methods for gathering genetic variation in these two ash species. To determine which of these methods results in adequate levels of genetic variation to meet the goals of the ash-seed collection program, we will use molecular tools to test the efficacy of the collection strategies to determine the level of genetic variation that each strategy captures. This information can assist our collection project focus on a collection strategy that allows the greatest amount of genetic variation with the least amount of time and effort expended for seed collection. It will also provide other seed collection efforts with guidelines for collecting from similar or additional ash species.

We have chosen to work with microsatellite markers, which are a class of molecular marker that has been used successfully in the past to identify levels of genetic variation in tree species. Seventeen different microsatellite markers have been derived from European ash (*F. excelsior*), and we are checking their ability to identify genetic variation in black and green ash. The goal is to have six to eight fully functional microsatellite markers before we proceed with the analysis of the three seed-collection strategies. Currently, of the 17 microsatellite markers, six are optimized in black and green ash, two look promising for black and green ash, four more are promising for black ash only, and five show no amplification in either species. Once the fully functional markers have been identified, the genetic assessment will begin. In the meantime, we will continue to collect ash seed as it is available in regions of the state where we have not made collections.

Minnesota Native Plant Society
P.O. Box 20401
Bloomington, MN 55420

Summer 2010

40 years ago

Dwarf trout lily goes to Kew

[This article about Erythronium propullans was printed in the March 1970 issue of The Minnesota Horticulturist, *the magazine of the Minnesota Horticultural Society. The endangered dwarf trout lily is the flower on the logo of the Minnesota Native Plant Society. John Masengarb, a Society member, submitted the article; the MSHS gave permission to reprint it.]*

by Julius Wadekamper

The *Minnesota Horticulturist* published an article on *Erythronium propullans* in the April 1968 issue. I was interested in locating and studying this species and perhaps adding it to my collection of Minnesota plants. It is said to be endemic to a few areas along the Cannon and Zumbro rivers in Rice and Goodhue counties.

I located *E. propullans* in Rice County. It was growing in a low area mingled with *E. albidum* [*white trout-lily or dogtooth-violet*]. *Propullans* has smaller flowers, less than one-half the size of *albidum*. The pedicels are very fine, and the leaves are smaller. The distinguishing characteristic is an offshoot from the stem of the plant just below the ground level. This offshoot is said to produce a single bulblet. *E. albidum* produces an offshoot below its present bulblet.

A few specimens were collected with the intention of adding one to my collection as well as to that of the University. Since I was going to London that summer to attend the International Lily Conference, I thought I would take one to the Royal Botanic Gardens at Kew and maybe make an original contribution.

Mr. Green, the officer of the day at the Kew Herbarium, welcomed me. We went through the herbarium in search for *Erythronium*. There was one specimen. It had been contributed by Asa Gray in 1871. The specimen was collected by the botany teacher at St. Mary's School in Faribault. Apparently she knew Professor Gray and collected plants for him. Gray, in turn, presented the type specimen to the Royal Botanic Garden.

Ninety-eight years later, I had the honor to present Kew with the second specimen. On returning from England, a letter was waiting from Sir George Taylor, director of the Gardens, which stated in part: "We are most grateful to you and particulary appreciate receiving recently collected specimens of *Erythronium propullans* Gray, previously represented in our collection only by type material sent here 98 years ago by Professor Asa Gray."

[According to a photo caption, the presentation was made in front of the building because the specimen had not yet been fumigated.]

Minnesota Plant Press

The Minnesota Native Plant Society Newsletter

Volume 29 Number 4 **Fall 2010**

Monthly meetings

Thompson Park Center/Dakota Lodge
Thompson County Park
360 Butler Ave. E.,
West St. Paul, MN 55118

Programs

The Minnesota Native Plant Society meets the first Thursday in October, November, December, February, March, April, May, and June. Check at www.mnnps.org for more program information.

6 p.m. — Social period

7 – 9 p.m. — Program, Society business

Nov. 4: "Characterizing patterns of natural disturbance in Minnesota's wet mesic southern boreal mixed wood forest ecosystems," by Michael Reinikainen, master of science student, Department of Forest Resources, U of M. **Plant-of-the-Month:** Naked miterwort (*Mitella nuda)*, "a good indicator for my research sites," by Michael Reinikainen. **Seed exchange.**

Dec. 2: To be announced.

Seed exchange Nov. 4

The annual seed exchange provides an opportunity for members to obtain seeds of native plants at no cost. Seeds must be placed in envelopes and labeled. No bulk piles of seeds will be accepted.

MNNPS website

For information about Society field trips, meetings and events, check the website: www.mnnps.org

Election will affect environmental legacy

by Scott Milburn, MNNPS president

We live in a state that has had a reputation as a place of ubiquitous natural resources. It's a legacy we hope will continue for future generations, and public support, such as the recent constitutional amendment, is encouraging.

Yet the overall political process seems counterintuitive when it comes to protecting and overseeing those natural resources. Ideally, the heads of agencies that oversee our natural resources would be chosen on merit and experience rather than political favor. However, that is not the usual pattern. We obviously have an election for the next governor of Minnesota this November, and my concern is this trend will continue regardless of who presides over our state.

There are other issues dominating this election, and debate has neglected detailed thought and discussion about natural resources. Instead, the debate has focused the attention on jobs, taxes, and regulation due to the sour economy. These are important issues, but this should not deter action from other important concerns.

Unfortunately, we are often thinking only of today as dictated by this current political system. The majority of our politicians serve under the banner of entitlement, all too often compromising to protect their political careers. The reason I bring this up is that it does affect the mission of the Society. We continue to see a changing landscape that brings a series of challenges. We face a growing population, which puts added pressure on our resources. We should be optimistic, however, because we have opportunities to be creative and solve problems before they appear. This goes back to the issue of putting the best and the brightest in positions of leadership. So as November approaches, members of the Society need to consider such issues and hope that the next governor will appoint true leaders, rather than continuing our current system.

In this issue

Conservation Corner

by Elizabeth Nixon

The MNNPS Blog on Conservation topics is two quick clicks away from the Society's Internet home page. Issues include legislative status on funding invasive species control, the ecological price of holiday decorations, and the need to have a voice for native plants at the Lessard-Sams Outdoor Heritage Council decisions on allocating the Minnesota legacy amendment dollars.

Clicking on the Education Blog brings to your attention both a crucial education and conservation initiative, that of No Child Left Inside. I hope you will consider what you can do to support this initiative. The MNNPS has helped by funding urban school buses to transport kids to an annual schoolchildren's bird festival in Ramsey County. Sad as it sounds, education dollars are not available for this.

Experiential learning in the natural world by children has been taken on as a serious outdoor conservation strategy by federal, state, and local decision-makers. The federal government hosted a national road trip this year called America's Great Outdoors (www.doi.gov/americasgreatoutdoors/index.cfm). I learned that top agency leaders are seriously soliciting programmatic ideas for getting urban (the vast majority) kids outdoors. Our state DNR had a very successful "More Kids in the Woods" inaugural season (www.dnr.state.mn.us/forestry/education/morekidsinthewoods/index.html).

You don't have to be an expert to volunteer as a chaperone getting more kids out in nature in your community. We hope you will read more about No Child Left Inside legislation at the MNNPS Blog, and consider what you can do to help advance the ideas at any level of effort that you can give.

Two-state invasive species conference

The first collaborative Minnesota-Wisconsin Invasive Species Conference will be held Nov. 8 - 10 at the Crowne Plaza Hotel, St. Paul. It will cover invasive aquatic and terrestrial plants, animals, pests, and pathogens. Information is at www.minnesotaswcs.org

Minnesota Native Plant Society's purpose

(Abbreviated from the bylaws)

This organization is exclusively organized and operated for educational and scientific purposes, including the following.

1. Conservation of all native plants.
2. Continuing education of all members in the plant sciences.
3. Education of the public regarding environmental protection of plant life.
4. Encouragement of research and publications on plants native to Minnesota.
5. Study of legislation on Minnesota flora, vegetation, ecosytems.
6. Preservation of native plants, plant communities, and scientific and natural areas.
7. Cooperation in programs concerned with the ecology of natural resources and scenic features.
8. Fellowship with all persons interested in native plants through meetings, lectures, workshops, and field trips.

MNNPS Board of Directors

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Three agencies work together, set restoration guidelines for native plant communities

by Dan Shaw, BWSR vegetation specialist/landscape ecologist, and Ken Graeve, Mn/DOT botanist. This is a summary of their talk at the June 3, 2010, MNNPS meeting.

As an increasing number of restoration projects are underway in the state, Board of Water and Soil and Resources (BWSR), Mn/DOT and DNR staffs have been working to develop a new list of state seed mixes as well as new native vegetation standards and restoration resources to guide professionals.

The new list of state seed mixes has been developed to combine mixes from the three agencies, keep species within their native ranges, eliminate confusion, and create more consistency for restoration efforts. A new seed-mix numbering system and a substitution table that lists pre-approved substitutions for species in mixes have also been developed. The substitution table will allow vendors more flexibility in preparing mixes, which will help to keep costs down and will also promote landscape-scale diversity in the use of these standard mixes.

New BWSR "Native Vegetation Establishment and Enhancement Guidelines" were developed through a collaborative effort by BWSR partners. These partners included federal, state and local agencies, vendors, consultants, non-profits and universities. These guidelines were written to meet legislative language, while developing consistent standards for native vegetation seed and plant sources, diversity levels, and quality.

Since they were finalized last winter, the guidelines have been adopted by the DNR, Legislative-Citizen Commission on Minnesota Resources, and Lessard-Sams Outdoor Heritage Council grant programs. New Mn/DOT seed specs have also been developed for construction projects. These specs incorporate the new list of state seed mixes and bring Mn/DOT requirements in line with the BWSR native seed guidelines.

Examples of new restoration resources include a Mn/DOT Native Seed Mix Design Manual to assist the development of site-specific seed mixes (www.bwsr.state.mn.us/native_vegetation/); the Minnesota Wetland Restoration Plant ID Guide; the Minnesota Wetland Restoration Guide Vegetation Section, and the BWSR What's Working Website (www.bwsr.state.mn.us/grants/WhatsWorking.html#veg)

Prairie research grants are available

Prairie Biotic Research (PBR) has announced its 2011 competitive small grants program which funds grants of up to $1,000 to individuals for the study of any grassland taxon anywhere in the United States. Proposals must be received by Jan. 7, 2011.

PBR is an all-volunteer Wisconsin non-profit established in 2000 to foster basic research in prairies and savannas. Grants are funded by donations. Since 2002, PBR has awarded 100 grants worth $94,849 to people in 24 states. Many of these grants supported graduate students. They expect to award at least 12 grants of up to $1,000 each in 2011.

For additional information on the grants or to make a donation, go to prairiebioticresearch.org

Weapons to fight emerald ash borer are tested

Biological and chemical controls are being tested in two areas as Minnesota fights the invasive emerald ash borer.

Stingless wasps

On Sept. 22, scientists from the Minnesota Department of Agriculture's Plant Protection Division released two species of stingless, predatory wasps on a dozen ash trees on a Mississippi River island in Houston County. Different proportions of male and female wasps were let loose on the trees. The wasps search out ash borer larvae or eggs and insert their own eggs into them. The developing wasps then consume their hosts.

Release of the wasps was approved by the U.S. Department of Agriculture. It will be several years before scientist can analyze the results. The stingless wasps were reared in a Michigan laboratory. The wasps and ash borers are both native to Asia.

Chemical control

Minneapolis parks officials are testing the effectiveness of insecticide injections on about three dozen ash trees in the Lowry Hill and Whittier neighborhoods. There are no known infestations in these areas, but they are considered vulnerable to the emerald ash borer. The treatment costs about $17 per tree and must be repeated every three years.

Treasurers' report

Treasurers Ron and Cathy Huber report that on Sept. 30, 2010, the Society had assets of $24,115.40, which included $8,867.30 in certificates of deposit.

Total income for the first nine months of 2010 was $9,186.78. Expenses totaled $9,700,18. Estimated expenses for the remainder of the year are $1,543.

Bylaw changes proposed

The MNNPS Board of Directors has proposed changing the organization's bylaws. Members will be asked to vote on the revisions at the December and February monthly meetings.

The proposed changes are shown below. Additions are underlined like this; deletions are indicated by a strike-through line ~~like this.~~ If only the title letter of a section is changed, and content of that section is unchanged, that change is not shown.

5. BYLAWS OF MINNESOTA NATIVE PLANT SOCIETY (adopted 1983, revised 1988, 1989, 1998, 2003)

ARTICLE III - MEMBERSHIP

SECTION A. There shall be ~~seven~~ eight classes of membership:

[1. Individual, 2. Family, 3. Student, 4. Senior]

5. Institutional. A legal organization. Twice the Individual rate. Entitled to one vote and one mailing of newsletter, does not include privilege of holding office.

6. Donor. Those individuals or organizations who make a gift, devise or memorial of ~~$25.00~~ three times the Individual rate, or more. Same privileges as individual.

7. Lifetime. Twenty times the Individual rate. Same privileges as Individual.

[8. Honorary.]

SECTION B. ~~Dues are payable upon application for membership and annually on the first of October~~. Membership is based upon the calendar year with dues payable in January. Any person with delinquent dues shall not be a member in good standing entitled to mailing of newsletter, voting rights or privileges of holding office.

SECTION H. New members joining after ~~April~~ June first shall ~~be considered paid through September of the following year.~~ have the choice of receiving back issues of the newsletter for that year, or applying the membership for the full following calendar year.

~~SECTION I. Special assessments to cover agenda may be proposed at any monthly meeting by the President for vote upon by the membership. A two-thirds majority of the members present shall carry. A quorum of 20 percent of the general membership is necessary.~~

ARTICLE IV - MEETINGS

SECTION B. Regular meetings of the Board of Directors shall be held quarterly ~~in June, September, December, and March~~ at such time and place as the President shall determine. ~~The Secretary or Program Chair shall give due notice of all meetings via the website, *Minnesota Plant Press* newsletter, e-mail or by telephone~~. The meetings shall be conducted by the President with assistance from other officers as requested and the Secretary shall take and record minutes.

SECTION C. Special meetings of the Board of Directors may be called by the President at such time and place as he or she shall determine. ~~The Secretary shall give due notice of all meetings by e-mail, post card, or telephone as appropriate~~. Said meetings shall be conducted by the President and the Secretary shall take and record minutes.

SECTION D. The Annual meeting of the membership shall be during the March meeting ~~or at such time and place as the President shall determine in the month of March~~. Notice of the Annual Meeting shall be given by the Secretary via the *Minnesota Plant Press* newsletter. The election of Directors to the Board and transaction of pertinent business shall be conducted by the President. ~~and the Secretary shall take and record minutes~~. ~~The Treasurer shall prepare and give an annual accounting of the corporation's receipts and expenditures which shall be published in the next newsletter. Chairpersons shall report on their committee's activities. A dinner may be held in conjunction as the Board of Directors shall determine. Notice of the Annual Meeting shall be given by the Secretary via the *Minnesota Plant Press* newsletter.~~ Directors will be elected by a simple majority.

~~**SECTION E.** Directors will be elected by a simple majority. An identified absentee ballot may be cast by mail. An absentee ballot may be obtained from the Secretary and must be returned to the Secretary before the election. Voting by proxy shall not be permitted. Election results shall be immediately announced by the President and published in the *Minnesota Plant Press* by the Secretary.~~

ARTICLE V - BOARD OF DIRECTORS

SECTION D. Board members are expected to attend three of the four board meetings, including mandatory attendance at June meeting, and are expected to actively participate in the operations of the Society.

SECTION ~~F~~. G. The Board of Directors shall each year ~~appoint a Nomination Committee of not less than three persons, chaired by the Vice President, to~~ propose a slate of three new directors, with notice of the proposed slate being mailed at least 30 days prior to the annual meeting. ~~The Nomination Committee shall propose a slate of new officers to the Board of Directors.~~

~~SECTION G. All members in good standing are welcome to attend meetings of the Board of Directors and have standing to make suggestions deemed in the best interests of the corporation by the President.~~

~~SECTION H. Directors shall serve from the time of the June Board~~

~~meeting following their election to the June meeting following the election of their successor.~~

~~SECTION I. In case any Director shall by death, incapacity, resignation or absenteeism fail to serve his or her full three-year term, the Board of Directors shall appoint a successor to serve out the balance of such term.~~

~~SECTION J. Whenever a vacancy shall occur in any office, it shall be immediately filled by the Board of Directors.~~

ARTICLE VI – OFFICES

SECTION C. The Vice-President shall actively assist the President, shall preside in the President's absence, ~~shall chair the nominations committee~~ and may be considered for the next presidency.

SECTION D. The Secretary shall take and record minutes of all board meetings and shall give due notice of the Monthly and Board meetings via the *Minnesota* ~~Native Plant~~ *Plant Press* newsletter.

ARTICLE VIII - STANDING COMMITTEES

The standing committees of the corporation are as follows:

1. Program~~, Education, and Lectures~~.
~~2. Membership and Outreach~~.
2. Publications (*Minnesota Plant Press* newsletter)
3. Conservation
4. Symposium

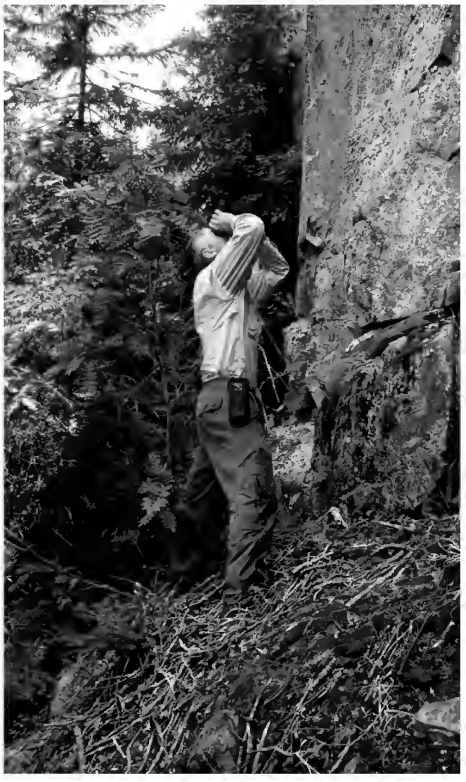
ARTICLE IX – NEWSLETTER

The *Minnesota Plant Press* newsletter shall be published at least three times a year~~, in September (fall), January (winter), and May (spring) and at such other times that the Board of Directors determines~~.

ARTICLE XI - AMENDMENTS

~~A quorum to transact business shall be 20 percent of the general membership~~. Changes to the Articles of Incorporation or the Bylaws shall require a two-thirds majority vote of the member*ship*~~, present at two consecutive Monthly meetings.~~ Members shall be notified by the *Minnesota Plant Press* newsletter of any change proposed by the Board of Directors. Voting shall be by secret ballot. ~~or an identified absentee ballot~~.

Searching for plants in the Boundary Waters Canoe Area



Mike Lee, botanist/ecologist for the Minnesota County Biological Survey, studied plants in the Boundary Waters Canoe Area this summer. His work included identifying plants and drying the specimens he collected. This is part of the ongoing work by MCBS to document plant communities and rare flora in the Border Lakes area.

The photo above shows how Mike Lee used solar power when pressing and drying plant specimens. In the photo at the left, he is examining a rock face, looking for potential areas with rare plants. Both photos are by Scott Milburn, MNNPS president.

MNNPS welcomes new members

The Society gives a warm welcome to five new members who joined during the third quarter of 2010. Listed alphabetically, they are:

Nancy Lizette Berlin, Red Wing;

Donald A. Doeksen, St. Paul;

Daniel and Diane Stauner, New Hope;

Barbara Wieman, Burnsville.

Prairie ecology, management are new book topics

The Ecology and Management of Prairies in the Central United States, by Chris Helzer, published for the Nature Conservancy by the University of Iowa Press, 2010, paperback, 208 pages, illustrated, $29.95.

Review by Arlene Kjar, MNNPS member; president of Prairie Partners of Cannon Valley, a volunteer group in Northfield that helps others with nature areas; a member of Prairie Smoke Chapter of The Prairie Enthusiasts; and a retired teacher.

The Ecology and Management of Prairies in the Central United States is an excellent book that provides background knowledge about how prairies work. The author provides information on how to mix and match management techniques in ways that will help to keep prairies vigorous and viable.

Chris Helzer is the program director for The Nature Conservancy's Eastern Nebraska Project Office in Aurora, Nebraska. He oversees the management and restoration of approximately 5,000 acres of conservancy-owned land.

The first part of the book consists of a description of the complex workings of prairies. Grasslands that are dominated by only a few plant species, especially non-native grasses, lack the ability to support the majority of prairie-dependent species and, in Helzer's opinion, are not prairies. He defines a plant community as all the plants that grow and interact together in a particular place. The strategies the plants develop to survive strengthen the community's ability to respond to drought, flooding, intense grazing, fire and other disturbances. A high quality prairie can have as many as 150 - 300 species of plants.

Helzer believes that invasive species removal needs to be prioritized. He feels that preventing new weeds from becoming a problem should always be first.

He states that the reason grassland birds are so scarce is because they need a very large area for nesting. Their predators come in from the edges of the prairie, especially when trees are present. A greenway patchwork of areas that are close or connected can provide corridors for their movement.

In the last half of the book, he identifies different ways to manage the prairie. Patch-burn grazing is a system in which a third of the prairie is burned. Cattle (or the grazing animal of choice) will eat from that area and leave the rest of the prairie to grow. This allows the grasses and forbs to recover. Every year another third of the prairie is burned, and the grazing animals will move to the new area without being fenced.

This is an excellent book to add to your nature library. It is published for the Nature Conservancy by the University of Iowa Press.

Bell Museum opens exhibit on shelter

Sustainable Shelter: Dwelling within the Forces of Nature opened Oct. 16 and runs through May 15, 2011. Just as birds gather local materials for their nests, humans build homes that use natural resources to meet their needs and desires. But while shelters in the animal kingdom work in tandem with natural cycles, most human shelters consume more natural resources and energy than they need.

This exhibit explores innovative home building technologies and strategies that can help restore the viability of natural systems; contrasts human dwellings with those of other animals; looks at housing around the world, and changes in U.S. houses over the past 150 years.

Book explores state wild places

"Our Neck of the Woods: Exploring Minnesota's Wild Places," edited by Daniel J. Philippon, published by the University of Minnesota Press, 2009; paperback, 277 pages, $19.95.

Review by Gerry Drewry

Most of these 57 personal "Sense of Place" essays were published in issues of *Minnesota Conservation Volunteer* since November 1994. Each article reflects the strong sense of place felt by the author.

Some are by well known writers, including Paul Gruchow, Sigurd F. Olson, Peter M. Leschak, Bill Holm, and Greg Breining. Some writers are members of the Minnesota Native Plant Society, including Erika Rowe, Nancy Sather, Kathleen Weflen, and Vera Ming Wong.

It is easy to find specific essays. The table of contents sorts them by category: Making Camp, Encountering Wildness, Getting Wet, Embracing Winter, Doing Science, Practicing Conservation, and Finding Home. A geographical index groups the essays by biome: Coniferous Forest, Deciduous Forest, and Prairie Grassland.

Some of the essays are lyrical, especially Sigurd Olson's *Trapper's Cabin*. Some are informative, such as Anne M. Dunn's *Sugar Bush Journal* and Eric Hanson's *Count Your Loons*. Some paint contrasting pictures of the same topics, including Lake Superior in winter and the Boundary Waters Canoe Area. Some praise specific aspects of nature, from winter to native plants to exploring a cave.

In summary, if you enjoy Minnesota's outdoors, you will find essays that reflect your experiences, inspire you to visit other locations, or make you feel that you are there with the author.

Plant Lore

by Thor Kommedahl

What is speckled alder?

Speckled alder is *Alnus incana* subsp. *rugosa*, and native to Minnesota. It belongs in the birch family.

How did it get its names?

Alder is an ancient name for tree. The Old English name was *alor*. *Alnus* is the Latin name for alder. *Incana* means gray (stem color), and *rugosa* means wrinkled (network of sunken veins on undersides of leaves). It is called speckled because of the numerous warty lenticels on the stem that are pale yellow or orange.

What does the plant look like?

It is a thicket-forming shrub, occasionally a small tree, with simple and alternate leaves. The terminal bud is stalked. It produces yellowish male flower clusters (catkins or aments) and reddish female, cone-like inflorescences bearing small, one-seeded, winged fruits (samaras). Wind disperses samaras. This female catkin remains on the plant in winter — useful for identification.

Where does the shrub grow?

It grows in wetlands or moist lowlands in the wooded areas of Minnesota, often as an understory in forests.

Is it poisonous or medicinal?

It is not poisonous or edible, but American Indians used a bark tea for diarrhea treatment, as a diuretic, for toothache, anemia, and many other problems.

Is it ecologically significant?

Alder roots fix nitrogen comparable to that by legumes. As an understory plant in forests, alder promotes growth of many deciduous and coniferous trees. Songbirds eat the "seeds," and it is the larval host for the green comma butterfly; it also attracts the tent caterpillar moth and other moths.

Is it part of any other "lore?"

Henry Wadsworth Longfellow, in his *Midnight Ride of Paul Revere*, wrote:

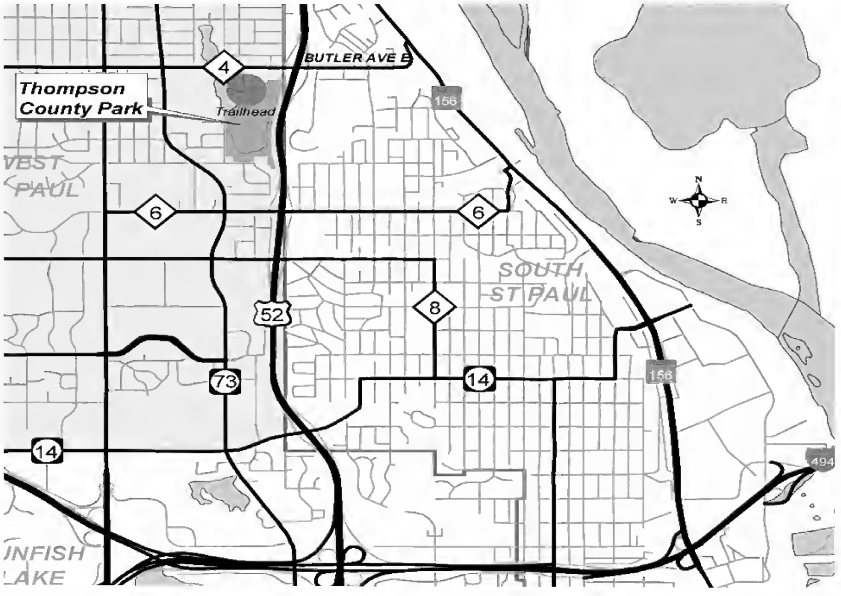
"And under the alders that skirt its edge,
Now soft on the sand, now loud on the ledge,
Is heard the tramp of his steed as he rides."

Right: Stalked speckled alder terminal bud. Below, top: Male and female speckled alder catkins, in winter. Below, bottom: Leaves, female catkins of speckled alder. Photos are by Peter Dziuk.

Minnesota Native Plant Society
P.O. Box 20401
Bloomington, MN 55420

Fall 2009

Thompson County Park:
360 Butler Ave East, West St. Paul, MN 55118



Directions:
Take MN Hwy. 52 to the Butler Ave. E. exit in West St. Paul.
Go west on Butler 0.2 mile to Stassen Lane.
Go south on Stassen Lane to Thompson County Park.